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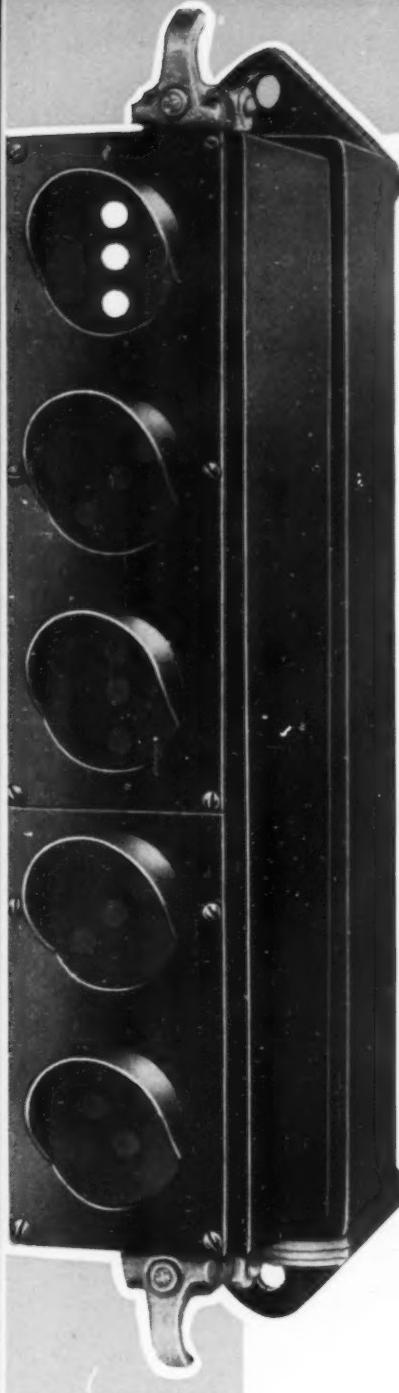
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Meeting the Requirements of
**FUTURE TRANSPORTATION
DEMANDS**
with
Modern Rolling Stock
and
"Union"
CODED CAB
SIGNAL EQUIPMENT

Class S-1 Type Locomotive of American Railroads now being exhibited at the New York World's Fair and equipped with "Union" Coded Cab Signal equipment.

There are 4,456 locomotives and motor cars with "Union" Cab Signal equipment operating over 7,373 miles of track.



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More Quack Remedies for Railroads

Various proposals are being made in Washington to "help" the railroads and use them to promote recovery. They include (1) government purchases of equipment to be leased to the railroads, and (2) government loans to enable the railroads themselves to increase their buying of equipment and materials and their employment of labor.

The government loaned them about 200 million dollars for the latter purposes in 1934. This may have helped temporarily to increase their purchases; but the available evidence actually indicates the contrary. Total buying of equipment and materials is normally determined by the amount of net earnings made; and such buying in 1934, and also in 1934 and 1935 combined, actually was smaller in proportion to net earnings than in the seven depression years 1932-1938, inclusive. The buying done with government loans apparently was more than offset by reduction of buying with money derived from other sources.

When so many industries and persons ostensibly are being benefited by government "aid" there is a temptation to advocate similar "aid" for an industry in which one is engaged or is selfishly interested. But the complete failure of recovery, and the present condition of general business, are incontrovertible proof that in the aggregate the so-called government "aid" to many industries and persons during the last six years has injured business as a whole many fold more than it has benefited it. Therefore, economists and economically-intelligent business men will eye with suspicion every proposal of such aid and oppose those that cannot stand the test of economic experience and principle.

Would Government Buying or Loans Help?

The railroads greatly need to increase their buying. Why, then, is it proposed that the government shall buy equipment and lease it to them, or make them loans with which to increase their buying? Because they cannot increase their buying with their present resources of net earnings and of credit based on them. But if their present net earnings and credit are insufficient to enable them to buy more, from what source is it assumed they could and would get money with which to pay the government rentals for equipment bought and owned by it? Speaking not in technical accounting but in practical terms, if they cannot buy more equipment they could not rent it, because the cost of *renting* it

would have to be paid from the same earnings as the equivalent cost of *owning* it.

The committee-of-six recommended equipment loans from the Reconstruction Finance Corporation on the security of trust certificates to bear interest at not more than 2 per cent, payments on the principal during the first five years to be optional with the borrower. The government could make loans having the advantages of very low rates of interest and of virtually indefinite postponement of principal payments. But interest, however low, and installments of the principal, however deferred, would, like rentals of equipment, have to be paid, if at all, from net earnings.

And thus analysis of these proposals, as of all other proposals for railroad "relief," always leads to the same conclusion—viz., that the railroad problem is essentially that of increasing net earnings, and that every means of "relief" which would not increase net earnings would be a makeshift which probably would do no good—and probably would do harm.

Policies That Have Failed for Eight Years

A very significant fact is that such proposals are still being made, although similar proposals have been made, or actually adopted, at intervals throughout the last eight years. The government began through the Reconstruction Finance Corporation under the Hoover administration in 1932 to make loans to save railroad companies from bankruptcy; and they have now borrowed hundreds of millions for this and other purposes. And what good has it done? It has not prevented the worst record of railroad bankruptcies in history; or many companies that have stayed nominally solvent from becoming actually bankrupt; or the most terrific reductions of railroad employment and buying ever made. This is because there has been no real railroad recovery—the true measure of recovery in every industry being net earnings. Even in 1936, the best railroad year since 1929, net earnings were only half as large as ten years before; and in 1938 they were only one-third as large as they averaged in the seven years ending with 1929. Gross earnings in the first third of 1939 were 115 million dollars larger than five years before in the first third of 1934; but operating expenses were 128 million and taxes 30 million dollars larger; and consequently net earnings declined from 145 million dollars in the first third of 1934 to 101 million in the

first third of 1939. Taxes are now constantly exceeding net earnings (before fixed charges)—being 114 million dollars in the first third of this year. And it is highly significant that of this amount more than 33 million dollars were payroll taxes—enough, on an annual basis, to pay 4 per cent interest on an investment of 2½ billion dollars. Is it any wonder, in view of such facts, that the railways cannot make adequate purchases with their net earnings and credit?

Increased Net Earnings the Only Solution

Government policies have prevented the increase that otherwise would have occurred in traffic and gross earnings. Government policies have caused the advances in wages and prices that have increased expenses. Government policies have increased the taxes. And it is proposed, not to change these government policies that have curtailed railway buying, but, as an offset, to adopt other government policies of buying equipment or making more government loans.

It won't work. The experience of eight years proves it won't work. As long as the railroads are prevented from having enough net earnings and enough credit with private capitalists to make adequate purchases, their net earnings will also be insufficient to pay enough interest or rentals to the government to get enough equipment and materials. The only solution of the problem of increasing their purchases, and of all their other problems, is an increase of net earnings caused by increase of their traffic and gross earnings, or reduction of their operating costs and taxes, or both.

Socialistic Policies—Nine Years of Depression

The depression has lasted more than nine years and still drags its weary length along; industries on which the railroads are dependent for business are sick and do not produce a normal volume of traffic; the railroads fail to get their economically fair share of the traffic produced; railroad operating expenses and taxes are excessive in proportion to gross earnings; greatly curtailed railroad net earnings greatly curtail railroad buying—for no reason whatever excepting that present government policies restrict profits in most industries and unfairly discriminate against the railroads in favor of other carriers.

A private-enterprise system is essentially and necessarily a profit system. Neither such a system as a whole, nor any part of it, can long be run without reasonable profits—because profits *alone* afford each industry the power to buy capital goods from other industries; and as long as some large industries have not enough profits to buy their shares of capital goods there is and must be depression.

The sooner the American people decide whether they want to restore and maintain the private enterprise-profit system or adopt a complete system of state socialism the better; for, as is most strikingly illustrated by the present railway situation, a private enterprise-

profit system or any part of it simply cannot be run under socialistic policies that unduly curtail profits. All efforts to nullify the effects of such socialistic policies as are being applied to the railroads, by adopting other socialistic policies such as buying equipment for them or making them government loans, will merely make the situation worse. The way to cure a sick man or a sick industry is not to monkey with the effects of the sickness, but to remove its *causes*.

The White Light of Publicity

Within the past few weeks, the National Railroad Adjustment Board has acquired a press gallery. Realizing finally that a source of news of the utmost importance to industry in general was lying neglected on their doorstep, the Chicago newspapers have assigned some of their best financial and business writers to cover the hearings. Although the board is a public body and its findings are of the greatest interest to the public, the labor members are not at all pleased by this new development. To state openly that they do not wish reporters present would be in the nature of a confession of guilt, but pressure has been brought to bear on the railroad members of the board to have them bar the newspapermen. Naturally enough, the railroad members have refused to accept responsibility for barring the press from open, public hearings, even though

A Socialist Politician Who Preaches More "Capitalistic" Common-Sense Than Many Alleged "Free Enterprisers" Are Aware Of

"There never has been any real justification offered for the building of so expensive a road as the present concrete roads, except to provide a right-of-way for heavy freight on trucks.

"I have always felt that the present policy of not only Wisconsin but of the several states that are attempting to finance this program will ultimately lead to their bankruptcy. During many years nearly 40 per cent of our state budget has gone into highway construction, and yet . . . the local units of government have never received more than from 8 per cent to 14 per cent of their cost.

"A single heavy truck traveling on a town road at certain times of the year will ruin it, while even in dry weather it is next to impossible to keep a gravel road in repair.

"Our present policy is not only helping to bankrupt the taxpayers in this state but is one of the main contributing factors to already having placed one-third of the railroads in the hands of receivers. The fact is the railroads are the greatest purchasers of goods in the country.

"I desire to say that 98 out of 100 people in this state, in my opinion, are becoming more and more incensed to sit by and see these monster freight caravans to a greater extent occupying roads and streets paid for by the sacrifice of the people of this state."

A Statement by Mayor Daniel W. Hoan of Milwaukee.

George Cook, a member of the National Mediation Board, hurried to Chicago, on other business, he said, to assist in applying the pressure.

This new development may well cause a certain change in the attitude and spirit of the board. This tribunal, although created as a public body, and presumably in the public interest, has hitherto kept its proceedings as quiet as possible. Although the railroads have tried, ever since its inception, to have transcripts made of the testimony and evidence before the board, the labor members have firmly refused to permit this to be done, reiterating this stand when the question came up again only last week.

A resume of the cases heard and of the awards made by the referees shows clearly the reason for this apparently unreasonable attitude on the part of the labor members. They have had experience with the press and

know only too well what would happen if experienced reporters were permitted to review testimony such as that, for example, which resulted in the recent "half-drunk, half-pay" decision, or any one of numerous others of a similar nature.

The railroads have, on occasion, been guilty of weak presentations before the board, but they have nothing to fear from publicity with regard to the cases that are heard. Labor's skirts, judging from the labor members' violent and unfavorable reaction to the recent publicity, are by no means so clear. How long the newspapers will consider the National Adjustment Board a source of "hot news" is problematical, but it is certainly high time that the doings of that body saw the light of day, and that some publicity emanated from it other than reproductions of the large checks received as a result of referees' awards.

What Will the Traffic Bear?—19

It is freely admitted that the instances of trucks diverting business from the railroads which have been cited in this series do not, standing alone, prove that truck inroads on railroad traffic are alarming. It takes more than a handful of yellow leaves to prove that winter is near.

Unfortunately for the railroads, however, statistics for the country as a whole demonstrate that

70 million tons less than in 1937 and revenue was 260 million dollars reduced.

It may be that some of this loss is due to less volume of total business in 1938, but a very large part of this traffic is not greatly affected by the fluctuations in the general business cycle. Besides, I. C. C. motor carrier statistics for 1938 show that interstate motor carriers for hire alone grossed approximately one-fourth as much as the railroads. The revenue received by motor carriers not reporting to the commission will add greatly to this total. Motor common carriers' loading statistics show a material increase in 1938 and a continuing increase in the first four months of 1939, contrasted with an enormous loss shown by the railroads in 1938 and only relatively slight gains for the first four months of 1939.

Considering the decade prior to 1938, it took the railroads ten years to lose a billion dollars of annual revenue to competitors, but recent figures indicate they are going to lose the second billion in not more than half that time, unless they take drastic action to stop this diversion.

This series has indicated by many specific instances how railroad rates on competitive traffic, based more nearly on actual handling costs, would restore much of this diverted traffic to the railroads. It has also been pointed out how below-cost back-haul rates by trucks are unfairly filching railroad traffic; and the belief has been expressed that these non-compensatory truck rates could not in reason be sustained by the I. C. C., if the railroads should vigorously attack them. So far no one has questioned these contentions.

Much remedial legislation is needed to give the railroads a fair break in competition, and at least a gambler's chance to earn a living. However, there is not any legislation even suggested which will enable railroads to regain traffic with their rates based on a monopoly condition which has now passed away. Meantime, even without any remedial legislation, a lot of traffic can be recovered from competitors—if the railroads will merely take advantage of their lower costs, and make rates to reflect these costs.



the instances given are typical, not exceptional. In 1937 the railroads had almost one billion dollars less gross revenue than they would have had if they had handled the same share of the nation's traffic under the same conditions that they did only 10 years earlier.

This alarming diversion of railroad tonnage and revenues was disclosed in I. C. C. Statement No. 3867 (reported in the *Railway Age* of February 11, page 262), indicating that the railroads in 10 years had piled up an annual loss of more than 100 million tons of products of agriculture, animals, manufacturers and miscellaneous and in l. c. l. freight.

Subsequent observation indicates that tonnage is now deserting the railroad for the truck at an even faster rate than in the decade 1928-37. Last year, for instance, railroad traffic in the categories mentioned in the preceding paragraph was



General View of the L. C. L. Facilities Across an Adjacent Barge Slip

Grand Trunk Rebuilds Its L. C. L. Facilities at Milwaukee

Enlarges office and constructs new house and platform to take care of largely increased business

CONFRONTED with the need for larger l. c. l. freight-handling facilities at its station at Milwaukee, Wis., to which both it and the Pennsylvania ferry freight across Lake Michigan from Muskegon on the Michigan side, the Grand Trunk Western recently built a new freight office at Milwaukee, in conjunction with its old small office, and has replaced a former inadequate covered platform with a new freight house 406 ft. long by 32 ft. wide and a new covered platform 105 ft. long. The new building units are strictly utilitarian in character, of substantial construction, and are designed and located to meet the specific class of business handled at this point, which involves a large percentage of storedoor delivery.

Like the old facilities, the new layout is served by two house tracks on one side and a trucking driveway on the other, but in the new arrangement the track capacity is practically doubled and the driveway has been broadened to a minimum width of 70 ft., replacing a cramped driveway that was only 25 ft. wide for about half of its length.

The road's freight facilities at Milwaukee, which are operated jointly with the Pennsylvania, are located on the water front of the Kinnickinnic river, adjacent to the ferry slips of both companies. This location not only minimizes switching between car ferries and the house, but the new arrangement, which provides office space within the enlarged freight house for both the freight agent and his staff and the superintendent of car ferries, permits the closest co-ordination between the local terminal and car ferry operations.

Former Facilities Inadequate

The old facilities at Milwaukee consisted of a one-story brick freight house 72 ft. long by 21 ft. wide, served on its west end by a shed-covered timber platform 165 ft. long by 15 ft. wide. The house proper afforded an office area of only 24 ft. by 30 ft., which was too small under existing conditions, and only approximately 800 sq. ft. of enclosed freight handling area, which was entirely inadequate to take care of the increased business being



This View Shows the Remodeled Old House in the Foreground with the Extensions Both Sides to the Rear



Looking Along the Driveway Side of the New Freight House, Showing the Enlarged Office in the Background

The Track Side of the New Facilities, Showing the Office Extension in the Center and the New Freight House to the Right



handled. In addition, these facilities afforded insufficient house track space, and were located too close to an adjacent slip to permit truck deliveries and collections without congestion.

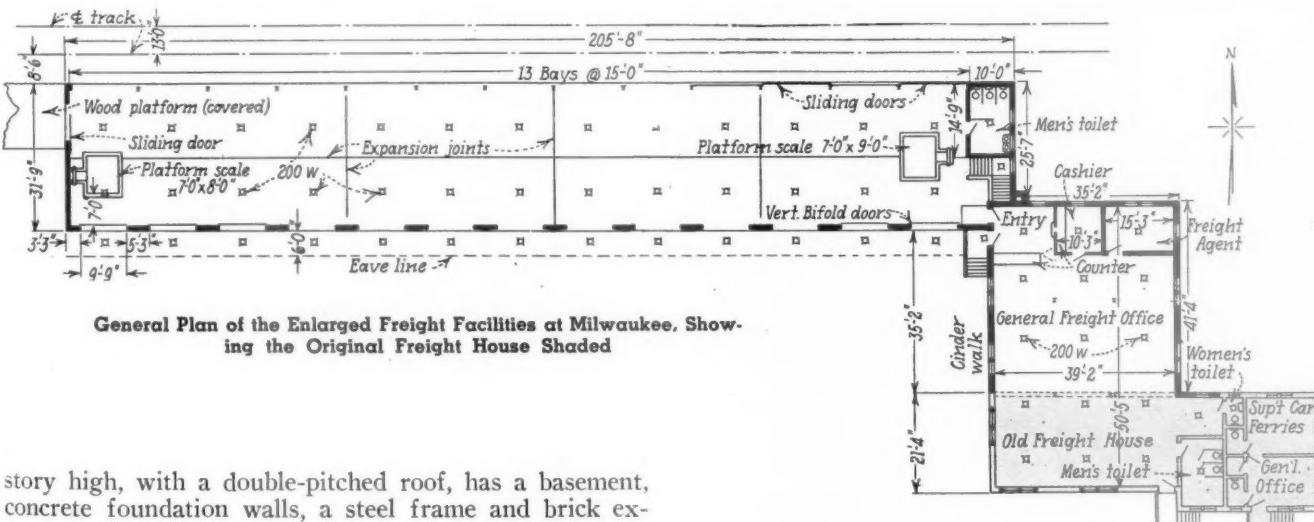
In the enlarged facilities, which incorporate the old freight house, these difficulties have been overcome, the office area having been enlarged to 3,060 sq. ft., the freight house area to approximately 5,000 sq. ft., and the driveway area having been widened by removing the old freight platform and locating the new freight house about 50 ft. further back from the slip.

The Enlarged Office and Freight House

In enlarging the freight office area, the old freight house was completely remodeled for office purposes and was cut through on the rear into a new office extension 39 ft. long by 35 ft. wide. The extension, which is one-

The new freight house proper, which connects with the northwest corner of the new office area, extends in an east and west direction parallel with the former open platform, but 50 ft. to the north. This unit, which is 205 ft. 8 in. long by 31 ft. 9 in. wide, is served along its north side by two relocated house tracks, and along its south face by the driveway, permitting direct transfer across its floor between cars and trucks.

The building is one-story high, with concrete foundation walls and footings on timber piles, a concrete floor, 5-in. thick, with a hardened wearing surface, at car floor height, supported on a compacted sand fill between foundation walls, and a structural steel frame supporting a single-pitched roof sloping from the track side toward the trucking side and extending out six feet over the driveway area to afford protection to loading and unloading operations during inclement weather. The roof itself, which is supported on 18-in. by 7½-in., 50-lb. I-beams on



General Plan of the Enlarged Freight Facilities at Milwaukee, Showing the Original Freight House Shaded

story high, with a double-pitched roof, has a basement, concrete foundation walls, a steel frame and brick exterior walls. The basement floor is of concrete; the first floor is $1\frac{3}{16}$ -in. oak on $\frac{1}{8}$ -in. diagonal sub-flooring; and the roof is of $1\frac{1}{4}$ -in. dressed and matched sheathing protected by 85-lb. mineral-surface roll roofing. The entire interior of the new office area, walls and ceiling, has a plaster finish on an insulating plaster base, 1-in. board being used over the ceiling and $\frac{1}{2}$ -in. board on the side walls, the latter being furred out 1 in. from the face of the brick. All window frames and sash as well as doors in this area are of wood.

The new arrangement provides a large general freight office, an agent's private office, a cashier's area and a customer's vestibule, together with toilet facilities and separate general and private office areas for the superintendent of car ferries. In addition, the basement provides space for a heating plant, a men's locker room, and file storage.

15-ft. centers, consists of 4-in. by 12-in. timber purlins and 2-in. tongue and groove sheathing, covered with 5-ply, built-up roofing, fully flashed with copper flashing.

The wall on the trucking side of the building is of brick construction between a series of thirteen 9-ft. 9-in. door openings, each fitted with frame doors of the vertical bi-folding type. Above the doors, which have windows in their upper sections, the wall area is fitted with large areas of steel sash, which, in turn, are surmounted by a brick parapet and tile coping.

On the track side, the wall is a continuous succession of openings between the roof-supporting columns, which are fitted with solid wood-panel sliding doors arranged in an offset system which permits any part of the wall



Looking Through the Interior of the New Freight House, Showing Some of the Features of Construction

face to be opened to facilitate the loading and unloading of cars. Above the doors, the wall area consists of continuous steel sash, 54-in. deep, which, together with the windows on the trucking side, insure adequate daylighting, even on cloudy days. Artificial lighting throughout the freight house is provided by means of two 200-watt electric ceiling lights in each bay, along with one 100-watt light in each bay beneath the canopy on the trucking side, all of which are set in shallow-bowl enamel reflectors.

The entire freight house floor area is given over to freight handling, and is unobstructed except for two 5- and 6-ton platform scales, one at each end, and a small

built-in men's toilet at the east end, together with a stairway down to the basement beneath the new office extension. No heat is provided through the freight house area.

The Covered Platform

The new covered platform, west of and adjoining the west end of the freight house, is designed to provide an increased car set-up at the house, and is used in the same manner as the house proper, primarily for cross trucking between cars and highway trucks on opposite sides. This platform, which is 15 ft. wide and 105 ft. long, is of frame construction throughout, and of more or less typical design, with timber deck bents, 3-in. by 12-in. plank flooring, and a double-pitched roof supported by two lines of timber posts. The shelter posts, which are spaced at 15-ft. intervals longitudinally along the platform, are located along the edge of the platform on the trucking side, but are set back 3 ft. on the track side to minimize interference with the handling of shipments to and from cars.

Like the house proper, the platform is equipped for adequate night illumination, being fitted with 100-watt roof lights at 15-ft. intervals, and in addition, with waterproof electric lighting outlets at each post on the track side to permit extension-cord lighting within cars. In addition to this direct lighting of the facilities, 1500-watt floodlights are mounted at each end of the freight-handling layout on the driveway side, to facilitate and increase the safety of night operations.

The enlarged facilities at Milwaukee were constructed under the direction of P. D. Fitzpatrick, until recently chief engineer of the Grand Trunk Western, and now general manager, and under the immediate supervision of A. N. Laird, bridge engineer.

The R. F. C.'s Cassius Clay Prescribes for Railroads

"Speaking plainly, the country is suffering from a surplus of transportation facilities. Partial relief can be afforded by the abandonment of mileage, and of whole lines, that have ceased to earn their own way. . . .

"Though the unions are regarded by the public as stubbornly opposed to consolidations, it may well be that the fears of labor can be more readily met, than the fears of some of the managements. . . .

"Permitting single companies, in interstate commerce, to engage in a general transportation business, on condition that they take out a federal charter, would both hasten the co-ordination . . . of competing methods of transportation, and, at the same time, simplify the problem of effective regulation. . . .

"The insurance companies and savings banks, which, with the endowed educational institutions and foundations, held (on the basis of 1936 figures) nearly 56 per cent of the funded debt of the railroads, up to now have been reluctant to assume the responsibilities of management. . . .

"Labor, also politically influential, is likewise inclined to put first immediate ends, because its leaders, who know what is wanted by the rank and file, are under compulsion to get it by pressure methods, at the risk of being displaced. . . .

"The railroads not only need more business—

they need relief from archaic capital structures. . . . A simplification of capital structures, with an emphasis, in reorganization procedure, upon providing an adequate medium for necessary new financing, with a realistic revision of obsolete debt structures, would seem called for. . . .

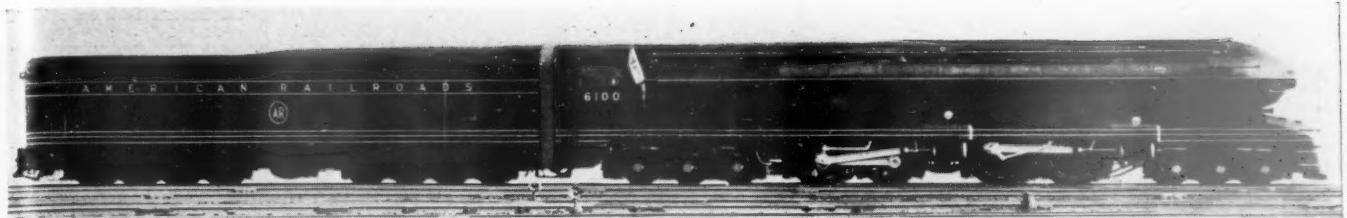
"There is need for less competition between railroads, in order that the railroads can compete more effectively with their new rivals. . . .

"To bring back business to the rails, there is need of more experimentation in the matter of rates. . . .

"Though our investment in highways, pipelines and improved waterways is now larger than the total capitalization of all the railroads, our transportation system, without the railroads, could not be made to bear anything like the whole volume of passenger and freight traffic without breaking down under the strain. . . .

"Government ownership of railroads is not a solution, unless we are prepared likewise for the eventual government ownership of competing forms of transportation. . . .

"There is an urgent need, if the railroads are to continue as the keystone of our prevailing price-and-profit system, that the ability of the railroads to finance themselves be restored. To do this, costs of operation must be lowered. . . ."



The 6-4-4-6 Class S-1 Locomotive, Operating at the New York World's Fair, Which Was Designed and Built by the Pennsylvania Railroad

High-Capacity Locomotive for Fast Service



The Streamline Front End

AMONG the items of railway equipment included in the exhibit of the World's Fair Committee, Eastern Presidents' Conference, at the New York World's Fair the most striking is the locomotive of the "American Railroads." It was designed by engineers of the American Locomotive Company, Baldwin Locomotive Works and Lima Locomotive Works in collaboration with the Pennsylvania and was built at the road's Altoona, Pa., Works. Not only is this a striking exhibit because of the character of the locomotive itself, but because it is mounted and is operating under its own steam on a roller stand which is so arranged that when

World's Fair engine, built by the Pennsylvania, expected to develop 6,500 indicated horsepower

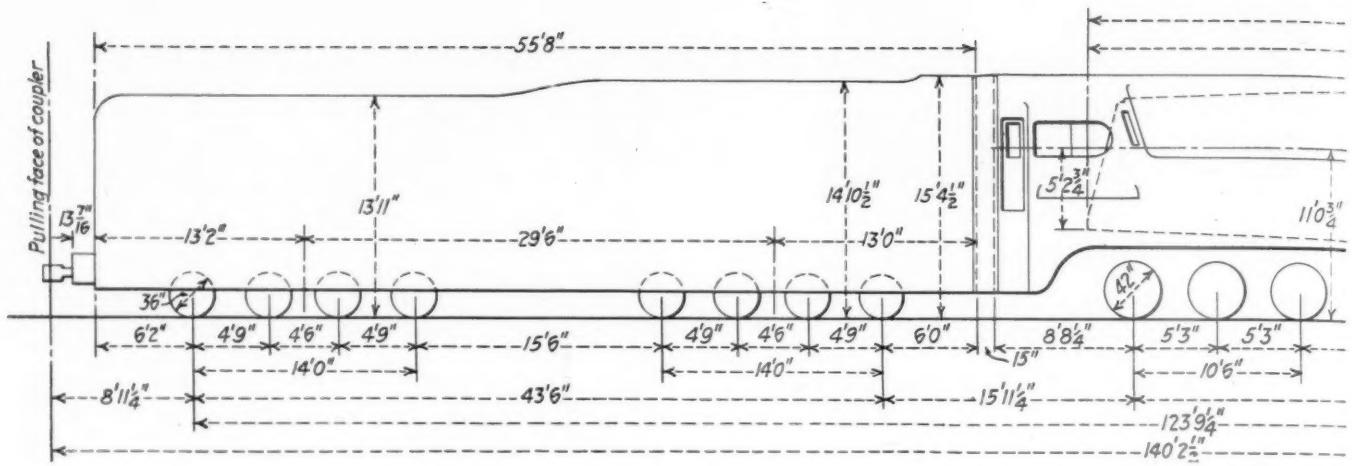
the driving wheels rotate the wheels of the engine truck, the trailer truck, and both tender trucks rotate at approximately the same linear velocity at the treads of the tires.

The locomotive has a 6-4-4-6 wheel arrangement. Each of the two four-coupled sets of driving wheels is driven by a pair of single-expansion cylinders, which are located ahead of their respective driving wheels in each case. This is the first modern road locomotive to be fitted with six-wheel engine and trailer trucks. It has the largest locomotive bed which has yet been cast and is expected to produce a higher cylinder horsepower than has yet been developed by any single rigid-frame locomotive. It is designed for handling heavy passenger trains of 1,200 tons at maximum speeds up to 100 m.p.h., on level, tangent track and it is estimated that it will develop a maximum of 6,500 indicated horsepower.

The boiler has 5,661 sq. ft. of evaporative heating surface and a combined heating surface of 7,746 sq. ft. It is notable for its large firebox and combustion chamber with a total radiant heating surface of 660 sq. ft. and a grate area of 132 sq. ft. The cylinders are 22 in. in diameter by 26 in. stroke, the shortest stroke of any modern high-capacity locomotive.

The Boiler

The boiler is a modified Belpaire type of large capacity. The outside diameter at the first barrel course is 93 in. and at the third course immediately in front of the combustion chamber the outside diameter is 102 in. The first and third courses are tapered; the middle course is straight. Designed for a working pressure of 300 lb. per sq. in., the shell courses, liners, and outside firebox sheets are of nickel steel. The rivets are a chrome-manganese-silicon steel chosen for its relatively high permissible bearing stresses. The front tube sheet is attached to a short connecting ring, inside of which fits



General Outline and Dimensions of

the front end of the first boiler course and which, in turn, fits inside the smoke-box shell.

The inside firebox dimensions are 8 ft. by 16 ft. 6 in. at the mud ring, and the combustion chamber extends 10 ft. forward into the third barrel course. Immediately back of its front circumferential seam this course has been flanged to the modified Belpaire roof-sheet form. The firebox construction differs from the true Belpaire design in that the roof sheet and crown sheet cross radii are not struck from the same centers, so that the crown stays are not all of the same length.

The first two barrel courses are $3\frac{1}{2}$ in. thick, and the third course and throat sheet are 1 in. Longitudinal seams are seal welded for 12 in. at the ends. The wrapper sheets are $\frac{5}{8}$ in., and the back-head sheet $\frac{1}{2}$ in. The top of the back boiler head is gusset stayed; the top of the front tube sheet is supported by rod stays.

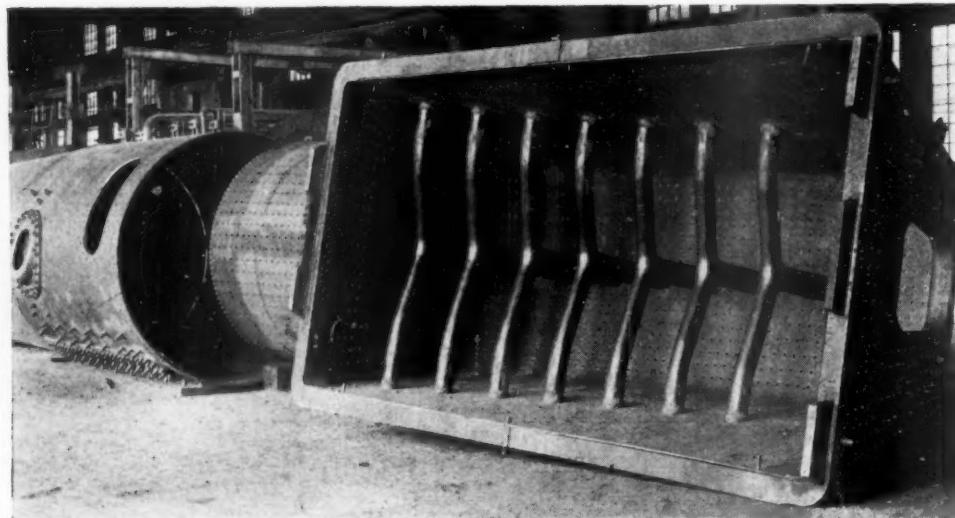
The inside firebox consists of the door sheet, the crown sheet, and two side sheets. The combustion chamber is in two pieces, and the combustion-chamber and firebox sheets are joined by a throat sheet. With the exception of the door sheet and tube sheet, all firebox and combustion chamber seams are welded. There is an extensive installation of Flannery flexible staybolts of the two-piece type with the caps welded onto the outside sheets. These include the sides and bottom of the combustion chamber, four rows along the top of the firebox side sheets, and large triangular areas at the front and back top corners. The crown stays in the four transverse rows at the front of the combustion chamber and

two longitudinal rows at each side of the roof are also flexibles. Those across the front of the crown, however, have caps screwed onto sleeves which are welded to the roof sheet. Two longitudinal rows of screwed cross stays join the vertical sides of the wrapper sheets above the crown sheet.

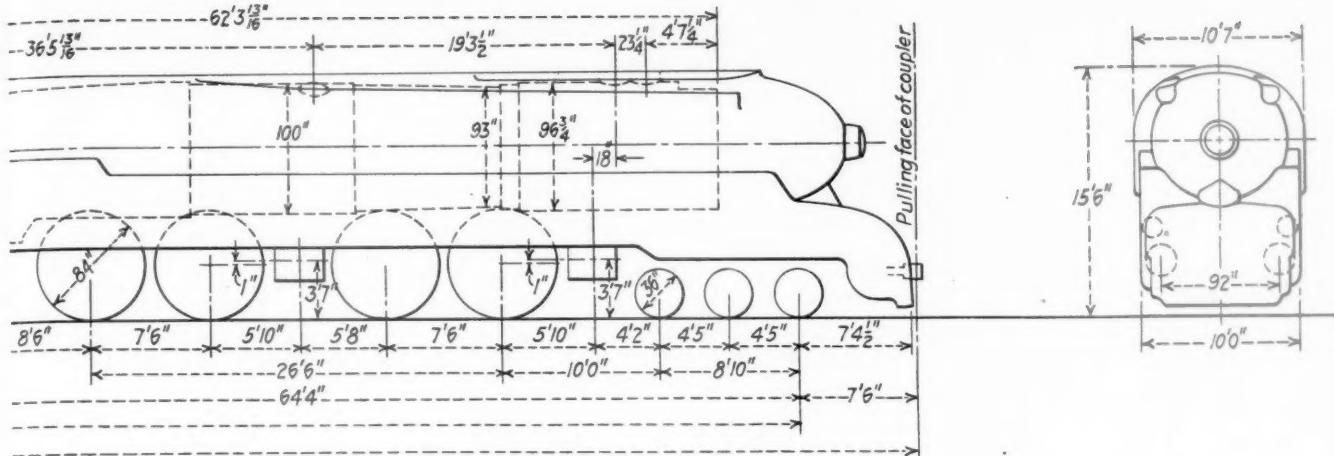
Inside the firebox are installed seven American Arch circulators. Each consists of a $5\frac{1}{2}$ -in. tube which extends across the firebox transversely and opens into the water space on either side. These tubes curve upward toward the longitudinal center line of the firebox and there lead into vertical 7-in. tubes which open into the water space at the center of the crown sheet. A more detailed description of this circulator appears elsewhere in this issue.

There is no main dome on the boiler, the dry-pipe intake being in the form of slots along the top of the pipe inside the boiler shell. There is, however, an auxiliary dome on the left side of the center line at the front of the second boiler course, with an 18 in. opening into the boiler, and a safety-valve well at the top center line near the back of the same course. This well is a heavy pressing which is mounted inside the boiler shell and depressed so that the safety valves come within the top clearance limits.

The tube sheets are laid out for a Type A superheater, with 69 double, single-pass units. The arrangement of these units is shown on the drawing of front end. The locomotive is fired by a Standard HT type stoker. The table grates are lightweight iron castings with a nickel



The Inside Firebox and
Combustion Chamber —
There Are Seven American
Arch Security Circulators



the Class S-1 Locomotive and Tender

content of 1.5 per cent and a chromium content of 0.75 per cent. The feedwater heater is a Worthington type 6Sa, with a type 7Sa pump. On the left side is a Sellers SW type injector. The delivery pipe for the injector extends forward from the back head inside the boiler. The boiler is fitted with mountain gage cocks, according to Pennsylvania practice for large locomotives. The intakes for these gage cocks are piped forward to a point approximately over the front end of the tube sheet. The boiler lagging is Alfol, the total weight of which is about 98 lb.

Frames and Running Gear

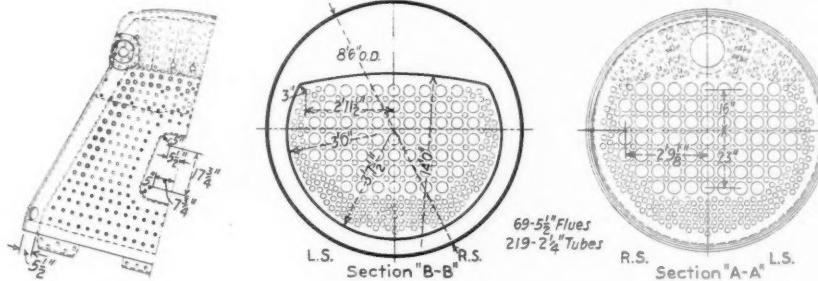
The foundation for the locomotive is a Commonwealth steel bed casting. With its two pairs of cylinders and

it requires an offset main crank so that there may be sufficient metal in the wheel center between the axle and crank-pin fits. The throw of the side rod is increased by $1\frac{1}{8}$ in. from the 13-in. throw of the back end of the main rod.

The piston head, piston rod and crosshead are of the Timken lightweight design employing the Timken high-dynamic steel. The crosshead is the two-piece bolted type which is draw-clamped on alternate taper shoulders and recesses around the end of the piston rod. The guides are of the multi-ledge type and the crosshead shoe is of aluminum alloy. The reciprocating parts on each side of each engine have a weight of 1,010 lb., 52 per cent of which is balanced.

Both ends of each side rod are fitted with spherical bushings. The convex spherical bronze bushing floats

The Back Head and Boiler Cross-Sections



valve chambers, including the back cylinder and valve-chamber heads, all of which are cast integral, this bed weighs 97,620 lb., the heaviest which has yet been poured. Included in the casting is a front cylinder saddle, a forward extension from which forms the bottom of the smokebox. Pockets in the saddle portion of the casting extend down to the tops of the valve chambers and include the outside steam connection to them. In the back wall are also inside and outside flange connections for the steam pipes to the rear pair of cylinders. The cylinder spread is 92 in.

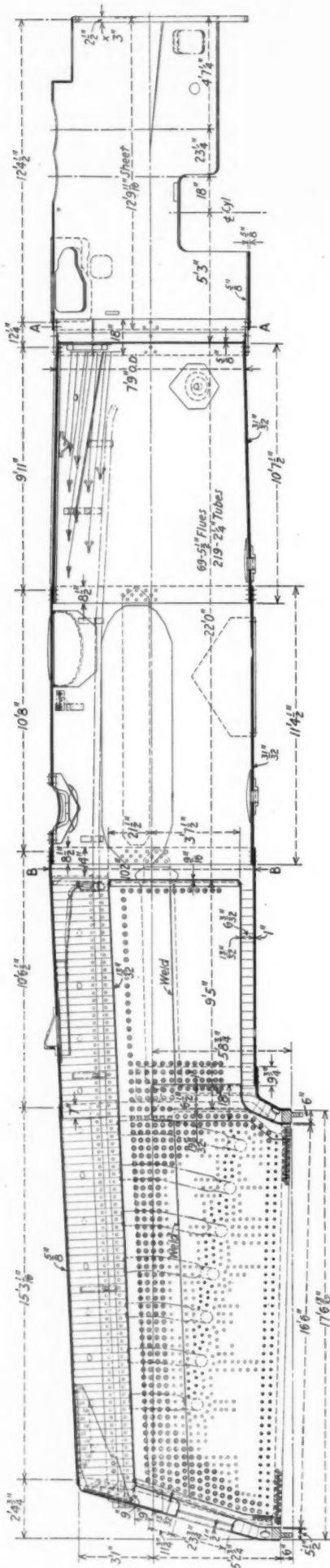
The driving wheels are of the Baldwin disc type mounted on axles with journals 12 3/4 in. by 13 in. The wheels are 84 in. in diameter over the tires. The journals are fitted with Timken roller bearings in split-type tubular housings. Alco lateral-motion controls are installed on the boxes of the No. 1 and No. 3 driving axles.

An unusual feature in this locomotive is the employment of a stroke of only 26 in. No other high-capacity passenger locomotive has so short a stroke and to obtain

between the crank pin and the concave spherical steel bushing pressed in the rod. The main-rod crank-pin bearing is a cylindrical floating bushing.

The engine and trailer trucks both have six wheels. The engine truck is of the increasing-resistance geared lateral-motion type. It is unusual in that it has a three-point suspension. The leading pair of wheels are cross-equalized at the rear, while the two rear wheels on each side are equalized together. Coil springs are employed in the hangers at the front ends of the front semi-elliptical springs, at the front ends of the semi-elliptical springs over the No. 2 axle, and at the rear ends of the semi-elliptical springs over the No. 3 axle. The center of the cross-equalizer at the rear of the front pair of wheels is pivoted to the truck frame.

The trailing truck is of the Delta type. The four driving wheels and the three trailing-truck wheels on each side of the locomotive are continuously equalized. Double-coil springs are inserted between the front ends of the semi-elliptical driving springs and the frame at



Sectional Elevation of the Boiler for the S-1 Class Locomotive

the front ends of the No. 1 drivers and at the rear end of the trailer truck. The rear end of the locomotive is supported on the rear end of the trailer truck frame through a roller centering device.

The engine-truck journals are 7 in. by 9 in. and the trailer-truck journals 8 in. by 12 in. Both trucks are equipped with Timken roller-bearing journal boxes.

The driving axles are hollow bored. The driving, engine-truck and trailer-truck axles are low-carbon nickel steel normalized and tempered. The same material is also used in the crank pins and in the main and side rods.

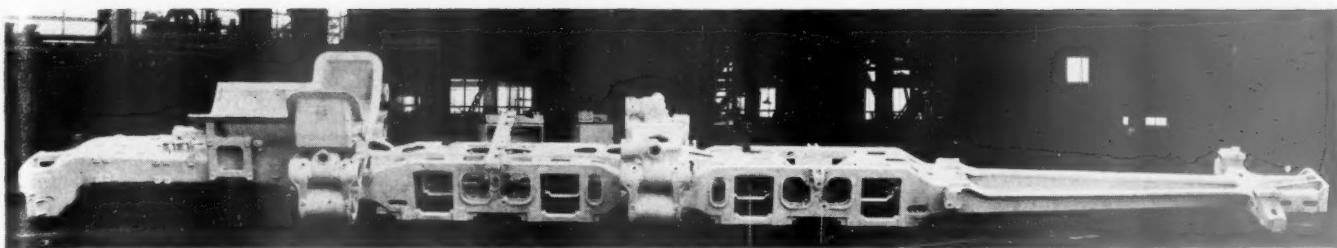
Steam Distribution

Steam distribution is effected by Walschaert valve gears which provide a maximum travel of $7\frac{1}{2}$ in. for

General Dimensions, Weights and Proportions of the Pennsylvania 6-4-4-6 Type Locomotive

Railroad	Pennsylvania
Builder	Pennsylvania
Type of locomotive	6-4-4-6
Road class	S-1
Date built	1939
Service	Passenger
Dimensions:	
Height to top of stack, ft.-in.	15-6
Height to center of boiler, ft.-in.	11-3/4
Width overall, ft.-in.	10-7
Cylinder centers, in.	92
Weights in working order, lb.:	
On drivers	281,440
On front truck	135,100
On trailing truck	191,630
Total engine	608,170
Tender	451,840
Wheel bases, ft.-in.:	
Driving	26-6
Engine, total	64-4
Engine and tender, total	123-9 1/4
Wheels, diameter outside tires, in.:	
Driving	84
Front truck	36
Trailing truck	42
Engine:	
Cylinders, number, diameter and stroke, in.	4-22x26
Valve gear, type	Walschaert
Valves, piston type, size, in.	12
Maximum travel, in.	7 1/2
Steam lap, in.	1 1/8
Lead, in.	5/8
Boiler:	
Type	Modified Belpaire
Steam pressure, lb. per sq. in.	300
Diameter, first ring, outside, in.	93
Diameter, largest, outside, in.	102
Firebox length, inside, in.	198
Firebox width, inside, in.	96
Height mud ring to crown sheet, back, in.	71 1/4
Combustion-chamber length, in.	120
Tubes, number and diameter, in.	219-2 1/4
Flues, number and diameter, in.	69-5 1/2
Length over tube sheets, ft.	22-0
Fuel	Bituminous coal
Grate area, sq. ft.	132
Heating surfaces, sq. ft.:	
Firebox, total	660
Tubes and flues	5,001
Evaporative, total	5,661
Superheater	2,085
Comb. evap. and superheat	7,746
Tender:	
Type	Water bottom
Water capacity, gal.	24,230
Fuel capacity, tons	26 1/4
Trucks	Eight-wheel
Rated tractive force, engine, 85 per cent, lb.	76,400
Weight proportions:	
Weight on drivers + weight, engine, per cent	46.27
Weight on front truck + tractive force	3.68
Weight of engine + evap. heat. surface	107.43
Weight of engine + comb. heat. surface	78.51
Boiler proportions:	
Firebox heat. surface, per cent comb. heat. surface	8.52
Tube-flue heat. surface, per cent comb. heat. surface	64.56
Superheat. surface, per cent comb. heat. surface	26.92
Firebox heat. surface + grate area	5.00
Tube-flue heat. surface + grate area	37.89
Superheat. surface + grate area	15.79
Comb. heat. surface + grate area	58.68
Evap. heat. surface + grate area	42.88
Tractive force + grate area	578.78
Tractive force + evap. heat. surface	13.49
Tractive force + comb. heat. surface	9.86
Tractive force x diam. drivers + comb. heat. surface	828.5

the 12-in. piston valves. All four valve motions are controlled by a single Alco power reverse gear. The reach rod on this gear is connected directly to the reverse



The Largest Bed Casting—It Is 77 Ft. 9 1/2 In. Long and Weighs 97,620 Lb.

shaft for the front pair of cylinders. A connection rod extends back to the reverse shaft for the rear pair of cylinders. Normalized and tempered low-carbon nickel steel is used for the radius rod, lap-and-lead lever, the link lifter and the union link. Carbon steel is used for the remaining valve-motion parts.

An American front-end throttle is built into the superheater header. The branch pipes from the header are each provided with a Y-connection at the lower end, one leg of the Y extending downward to the bottom of the cylinder-saddle pocket in the bed casting and the other extending back to the rear wall of this pocket. They are seated against the bed-casting openings with ball-joint rings. The branch pipe for each rear cylinder is in turn seated against an extension on the outside wall of the cylinder saddle and extends back toward the steam-chest connection on the rear cylinder. This connection includes a slip-joint gland, and the branch pipe is connected to the front of the slip-joint flange. All connections are closed with the usual ball-joint rings. These outside branch pipes are lagged with Unarco Special In-subbestos pipe covering, 2 in. thick.

The cylinder and valve packings are Locomotive Finished Material Company lip-ring design. The piston-rod and valve-stem packings are the King type.

The Front End

This locomotive has an unusual front-end arrangement. There is a separate exhaust pipe and stack for each pair of cylinders. These are arranged one in front of the other, the front exhaust pipe leading from the forward pair of cylinders. Exhaust cavities below both exhaust pipes are in the bed casting. That at the front is cored to the first pair of cylinders, the center line of

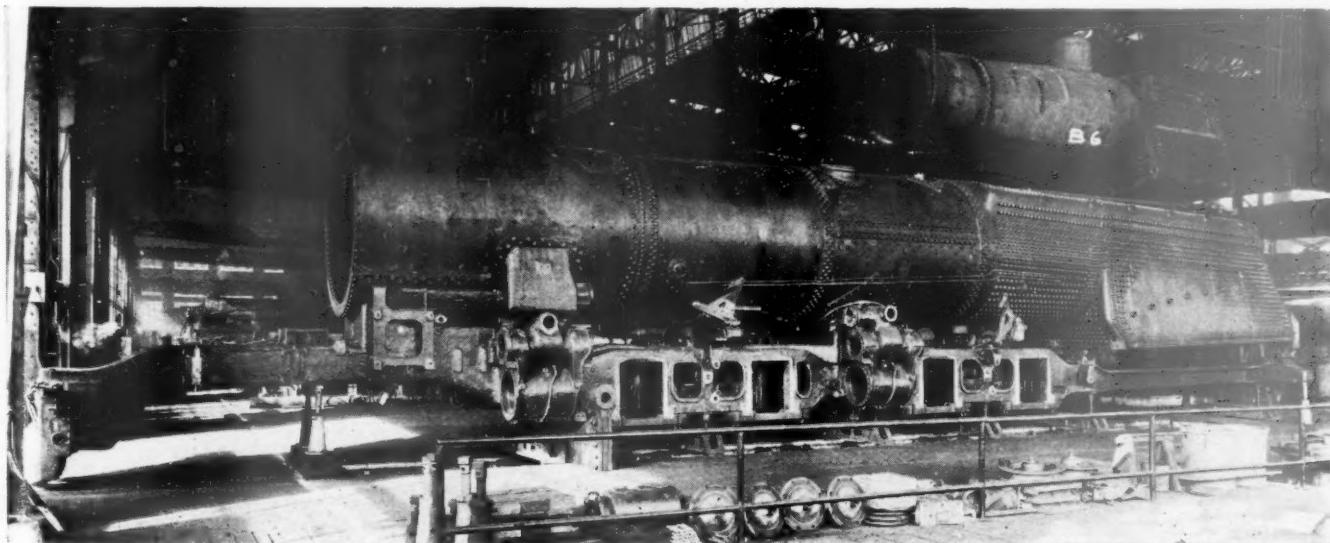
which is 41 1/4 in. at the rear of the exhaust-pipe center.

The rear exhaust cavity terminates at the face of the rear wall of the front cylinders on the center line of the locomotive. A 10-in. steel pipe leads back to the front face of the rear cylinders. A slip joint is housed within the cross member of the bed casting between No. 1 and No. 2 pairs of driving wheels. Passages from each exhaust cavity below the smokebox lead up to an opening in the floor of the smokebox, just inside the front-end door, from which a steam pipe leads to the feedwater heater, mounted in a recess in top of the smokebox in front of the stacks.

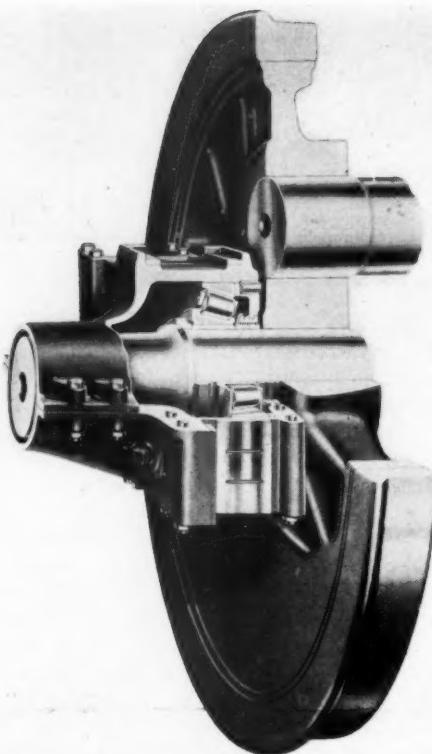
At the center, over the exhaust pipes, the table plate is 21 in. below the center line of the smokebox, sloping upward toward the sides. Extending down and back from the center of the smokebox door is a cinder-buster screen. Behind this screen is a completely unobstructed vertical passage of 15 3/8 in. into the space surrounding the stacks. At the back of this passage is a vertical deflecting plate which extends up from the front of the horizontal table plate to a height of 4 1/4 in. above the center line of the smokebox. Behind this plate are the stacks, the extensions of which terminate 9 in. below the center line of the smokebox. The exhaust tips are of the annular ported type.

Lubrication

Cylinder and chassis lubrication is furnished from three Nathan DV-7 38-pint mechanical lubricators. Two of the lubricators are placed on the left side and one on the right side. Each right-side lubricator feeds one pair of cylinders and valves. There are top and bottom connections at the middle of each cylinder and a connection into the steam pipe near each valve cham-



An Interesting Comparison—The Boiler in Place on the Bed Casting



The Timken Split Type Tubular Roller-Bearing Housing Is Applied to the Class S-1 Locomotive Drivers

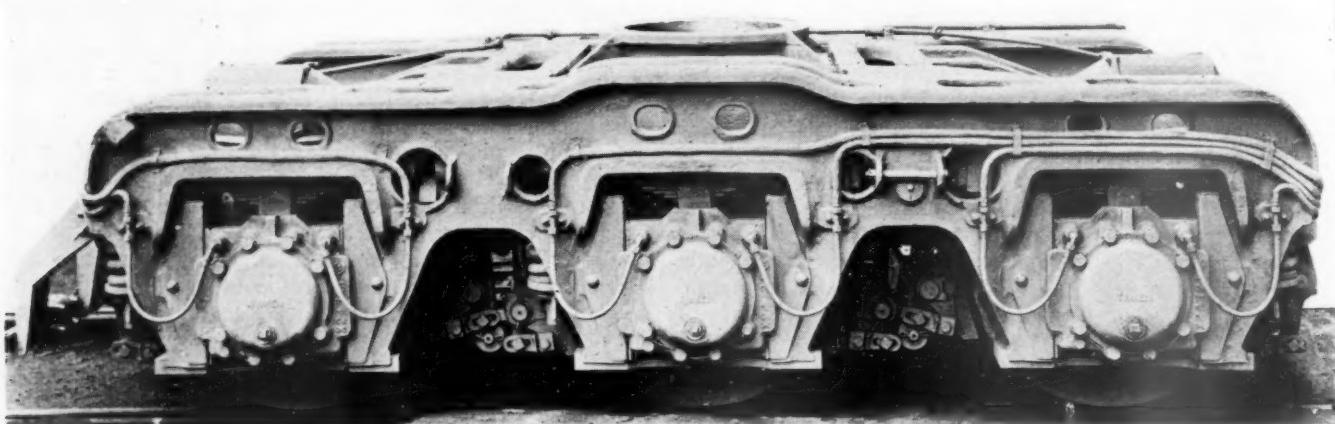
ber. Atomizers with steam connections from a special manifold are placed between the terminal checks and the steam-pipe and top-cylinder oil fittings. There is one oil connection to each guide. Oil lines from the front cylinder lubricators also lead to the feedwater-heater steam pipe and rear-cylinder exhaust-pipe expansion joint. Oil is fed to the stoker engine from the rear lubricator.

The lubricator on the left side of the locomotive has ten feeds, one for the pedestal shoes at each axle. Each feed line from the lubricator leads to a Nathan four-way oil distributor. From the distributor oil lines lead to the front and back pedestal shoes on each side of the locomotive. The lubricators are driven by connections to the valve-motion links. Alemite lubrication is used at various locations on the valve motion, crosshead guides, spring rigging, brake rigging, driving box lateral motion spring seats and throttle operating mechanism.

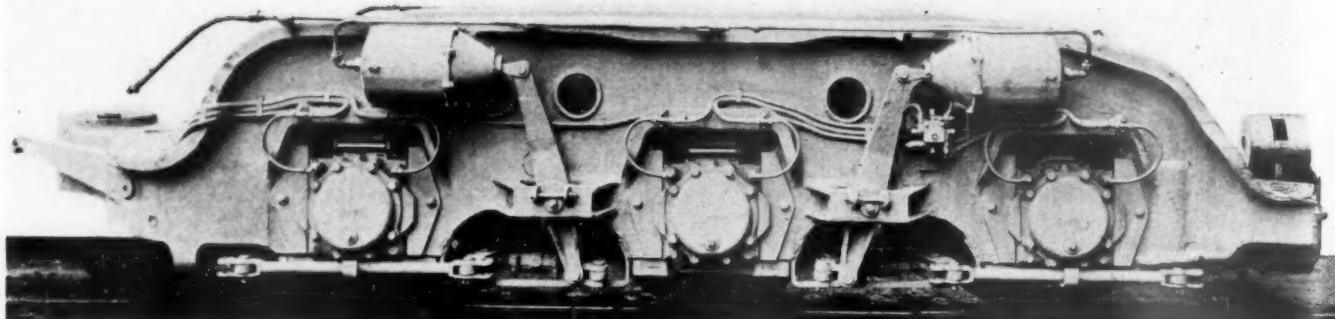
Brakes

The locomotive is equipped with two Westinghouse cross-compound air compressors and D-22-L air brakes with the controlled-emergency feature. This brake comprises the M-40-A automatic brake valve, S-40-B independent brake valve, D-22-E control valve and B relay valve. This is the locomotive equipment customarily employed with HSC type train brakes, except that it does not include the electro-pneumatic features. These, however, may be added in the future.

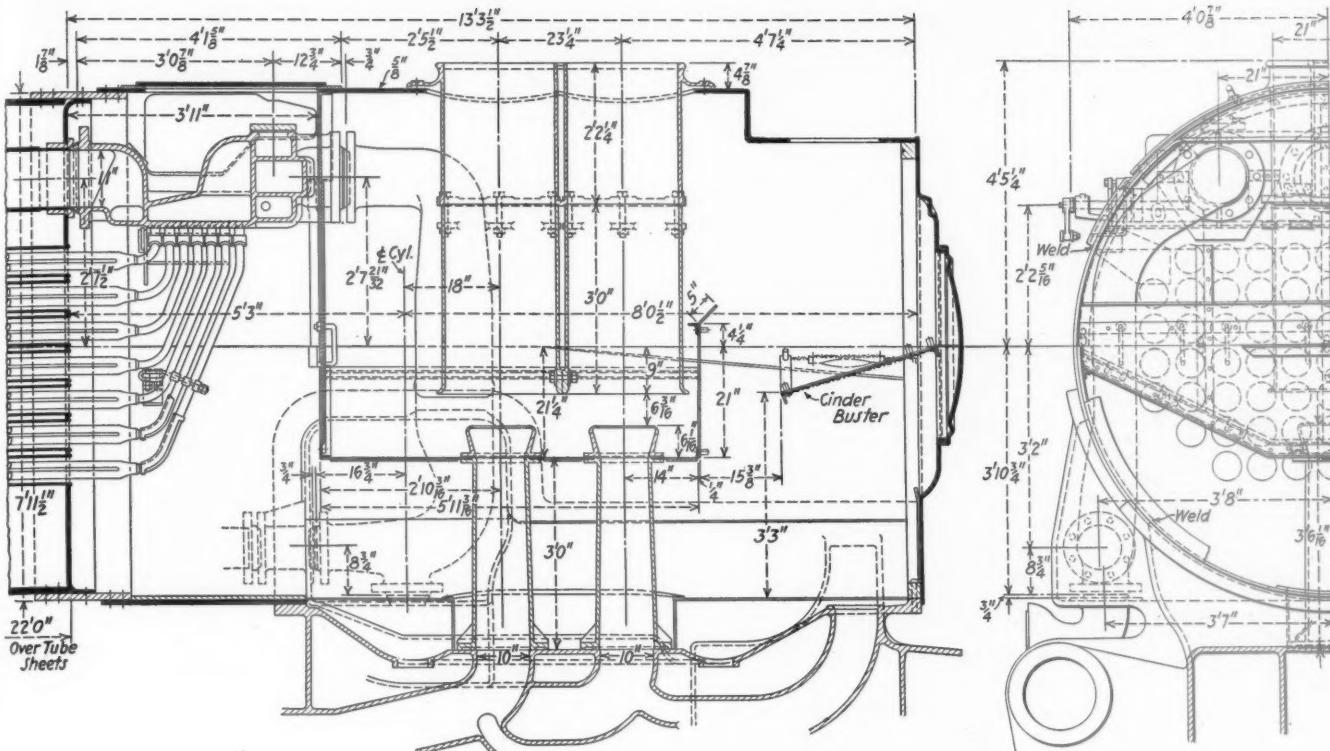
The M-40-A brake valve provides the same predetermined brake-pipe reduction in the first-service position



The Commonwealth Six-Wheel Engine Truck Has Three-Point Suspension



The Commonwealth Six-Wheel Trailing Truck

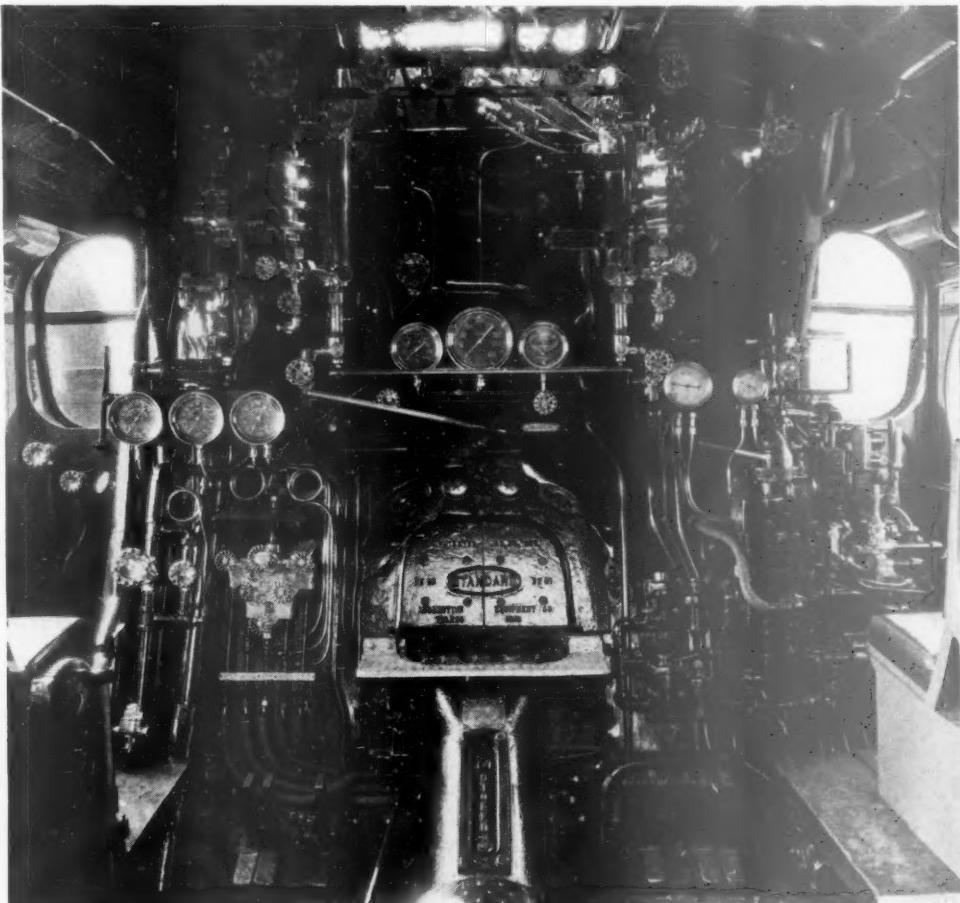


The Locomotive Front End

and permits the emergency application on the second locomotive with the brake-pipe cock closed in double heading, as is available with the No. 8 ET brake. Its controlled emergency feature for operation in freight-train service is also the same as with the No. 8 ET equip-

ment. The S-40-B independent brake valve is of the self-lapping type. With the B relay valve brake-cylinder pressure on the locomotive is maintained from the main reservoir.

Clasp brakes are applied on all wheels of the loco-



The Interior of the Locomotive Cab Shows the D-22-L Air-Brake Equipment with Provision for Ultimate Inclusion of the Electro-Pneumatic Features

motive. The driving brakes are operated by one cylinder for each pair of wheels.

Cab and Cab Fittings

The auxiliary steam supply is taken from a small cast-steel fixture riveted to the roof sheet over the combustion chamber. This casting, the longitudinal section of which is triangular, has a vertical rear face from which the steam pipe leads back to the front of the cab. Steam for the blower is piped directly from the saturated-steam side of the superheater header.

The locomotive is fitted with a Union Switch & Signal continuous inductive cab signal installation.

Sand pipes are placed in front of both drivers of the front engine and in front of the back pair of drivers of the rear engine. There are four sandboxes, two on each side of the locomotive, behind the cowling below the running boards. Filling caps are accessible through the running boards. The sanders are Graham-White. In brake applications they may be operated by depressing the brake-valve handle and in emergency applications the sanders are operated automatically. There is also an independent sander valve.

In the design of the streamlining of the locomotive and tender, Raymond Loewy served as consultant. In general, the lines are similar to those first applied to a K4s locomotive, No. 3768, including the same type of smoke lifter. The cab and the bullet-nose front-end are of aluminum.

The Tender

The tender has a water capacity of 24,230 gallons and a coal capacity of 26½ tons. It is of welded construction, built on a Commonwealth cast-steel water-bottom underframe 58 ft. 10¼ in. long and weighing 43,060 lb.

The eight-wheel tender trucks were furnished by the Buckeye Steel Castings Co. The wheels are 36 in. in

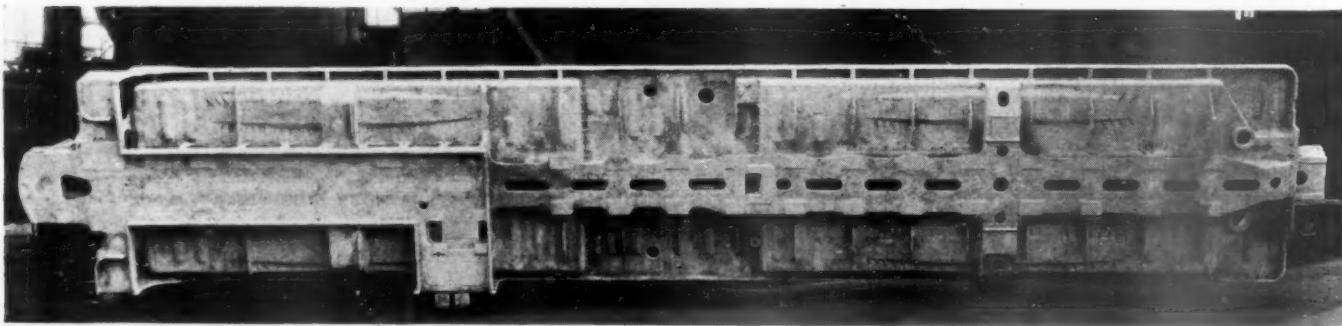
diameter and are mounted on 6½-in. by 12-in. axles, fitted with Timken roller bearings. This truck employs a modification of the type of equalized frame construction which is the feature of the Buckeye six-wheel trucks. A more detailed description of it appears elsewhere in this issue.

The clasp brakes are of the vertical-lever type and are actuated by two 14-in. by 10-in. brake cylinders mounted on each truck. Braking power is about 108 per cent of the light weight of the tender at 50 lb. per sq. in.

On the front end of the tender is a Franklin E2 type radial buffer. Barco flexible connections are used between the engine and tender. The steam-heat connection at the rear of the tender was also furnished by this company. There is a National tight-lock coupler at the rear end of the tender.

The Demonstration Stand

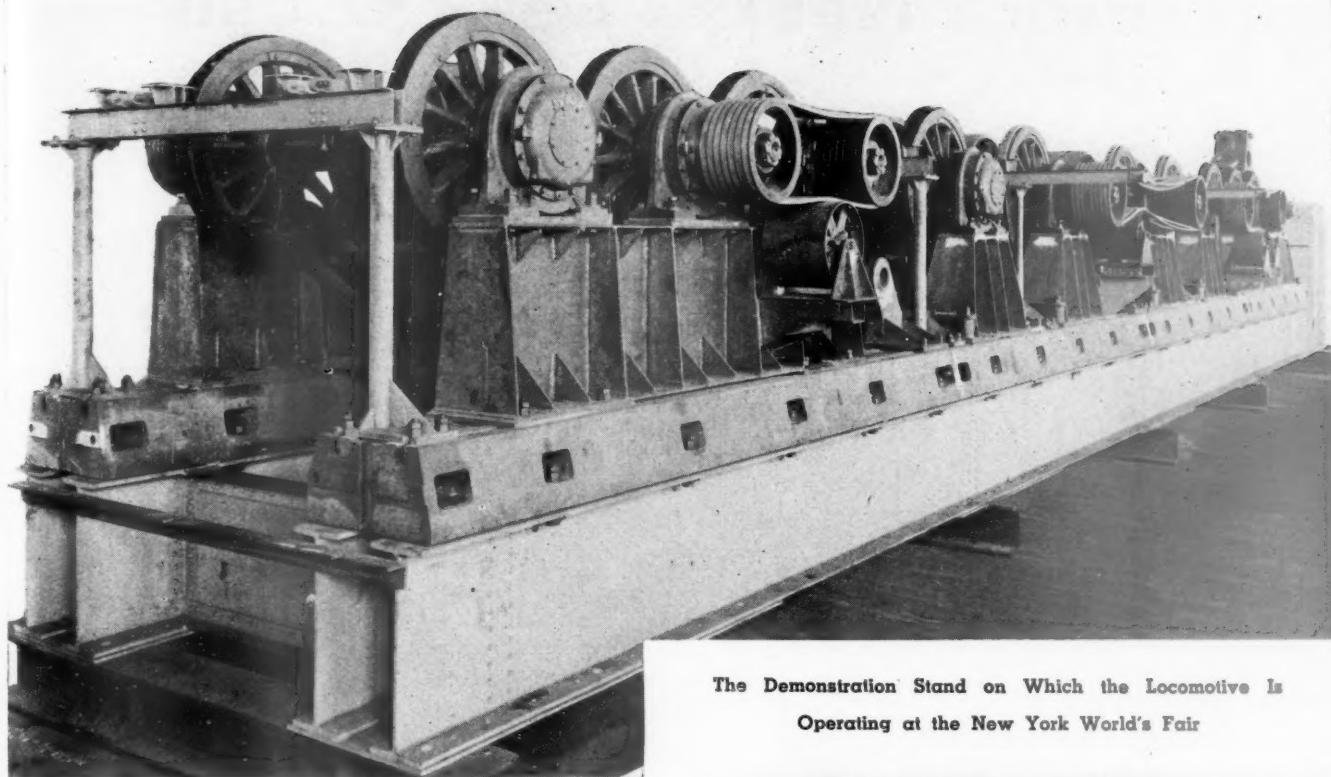
A striking feature of the railroad exhibit at the New York World's Fair is the operation of this locomotive under its own steam on a demonstration stand. This stand, which is mounted in a pit so that the locomotive is located at the usual rail height above the ground, consists of rollers, one pair under each pair of wheels on the locomotive and tender. The axles of the rollers are mounted in SKF roller bearings. Under the engine the rollers are mounted on a continuous base of four 33-in. H-beams which, in turn, are set on the concrete at the bottom of the pit. Above the H-beams on each side is a base plate of cast iron with longitudinal T-slots which permit the spacing of the roller pedestals to suit the wheel spacing of the locomotive. Each of the seven pairs of rollers under the trailing-truck axles and drivers is mounted on an independent pedestal. The close spacing of the engine-truck wheels required a single pedestal unit to support the three pairs of rollers under this truck. The rollers for each tender truck are mounted in a single unit which rests directly on the concrete foundation of



The Water-Bottom Tender-Frame Casting Weighs 43,060 Lb.



The Buckeye Eight-Wheel Tender Truck



The Demonstration Stand on Which the Locomotive Is
Operating at the New York World's Fair

the much shallower pit which extends under the tender. The treads of the locomotive wheels contact the rollers. The flanges of the tender wheels rest on the rollers.

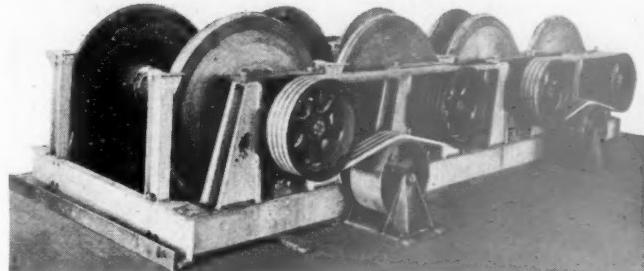
The operation of the rollers is synchronized so that, at whatever speed the driving wheels rotate, the engine-truck, trailing-truck and tender-truck wheels rotate at the same peripheral velocity. The rollers under No. 2 and No. 3 drivers are connected by V-belts so that both engines rotate at the same speed. From the rollers under No. 1 and No. 3 drivers, respectively, V-belts drive the adjoining rollers which support the engine and trailing trucks, respectively, with V-belt connections from one roller to the next under each truck.

The roller under each driving axle is connected by V-belt to a traction motor, which is being operated as a generator. A mechanical load is placed on the locomotive to take up slack in the rods by electrically loading these generators. The generators feed current into a water-cooled rheostat and also provide power for driving the tender wheels. A motor is geared to one roller under each tender truck and the remaining three rollers are connected by V-belt to the driven roller. A motor-generator set receiving power from an outside source provides a constant field for all generators and motors so that the load will be proportional to speed up to a predetermined value. At higher speeds, relays control the electrical load so that it remains approximately constant for all speeds.

Partial List of Materials and Equipment on the Pennsylvania 6-4-4-6 Type Locomotive

Steel.....	Allegheny Ludlum Steel Corp., Pittsburgh, Pa. Bethlehem Steel Co., Bethlehem, Pa. Carnegie-Illinois Steel Corp. Crucible Steel Co., of America, New York Edgewater Steel Co., Pittsburgh, Pa. Republic Steel Corp., Cleveland, Ohio Phoenix Iron Co., Phoenixville, Pa. Pittsburgh Steel Co., Pittsburgh, Pa. Taylor-Wharton Iron & Steel Co., High Bridge, N. J. Worth Steel Co., Claymont, Del.	Pyramid Metals Co., Chicago General Steel Castings Corp., Eddystone, Pa. Heppenstall Company, Pittsburgh, Pa. The Baldwin Locomotive Works, Philadelphia, Pa. Edgewater Steel Co., Pittsburgh, Pa. American Locomotive Co., Railway Steel Spring Div., New York Union Spring & Mfg. Co., New Kensington, Pa. The Timken Roller Bearing Company, Canton, Ohio McConway & Torley Co., Pittsburgh, Pa. Franklin Railway Supply Co., Inc., New York Westinghouse Air Brake Co., Wilmerding, Pa. American Brake Shoe & Foundry Co., New York
Steel castings.....	Atlas Steel Castings Co., Buffalo, N. Y. Atlantic Steel Castings Co., Chester, Pa. American Steel Foundries, Chicago Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa. Continental Roll & Steel Foundry Co., East Chicago, Ind. Fort Pitt Steel Casting Co., McKeesport, Pa. Lebanon Steel Foundry, Lebanon, Pa. Link-Belt Company, Dodge Plant, Indianapolis, Ind. Standard Steel Works Co., Burnham, Pa. Union Steel Castings Div. of Blaw-Knox Co., Pittsburgh, Pa. Lukens Steel Co., Coatesville, Pa. Central Iron & Steel Co., Harrisburg, Pa. Manganese Steel Forge Co., New York Camden Forge Co., Camden, N. J. Aluminum Co. of America, Pittsburgh, Pa.	
Steel plates.....		
Forgings.....		
Aluminum sheets.....		
Aluminum Bars.....		Whitehead Metal Products Co., New York
Snap-on moldings.....		Pyramid Metals Co., Chicago
Engine bed; engine and trailer trucks.....		General Steel Castings Corp., Eddystone, Pa.
Axes.....		Heppenstall Company, Pittsburgh, Pa.
Wheels, driving, disc.....		The Baldwin Locomotive Works, Philadelphia, Pa.
Wheels, engine truck.....		Edgewater Steel Co., Pittsburgh, Pa.
Driving-wheel tires.....		American Locomotive Co., Railway Steel Spring Div., New York
Springs, helical.....		Union Spring & Mfg. Co., New Kensington, Pa.
Lateral-motion device; power reverse gear.....		American Locomotive Co., New York
Roller bearings — Drivers, engine- truck and trailer truck.....		The Timken Roller Bearing Company, Canton, Ohio
Folding coupler, front.....		McConway & Torley Co., Pittsburgh, Pa.
Radial buffer, Type E2.....		Franklin Railway Supply Co., Inc., New York
Air brakes.....		Westinghouse Air Brake Co., Wilmerding, Pa.
Brake shoes.....		American Brake Shoe & Foundry Co., New York

(Continued on page 1079)



The Rollers Under the Tender Trucks Are Motor-Driven and Belt-Connected

More Net On Less Gross

Despite loss of six-sevenths of its traffic, Rio Grande Southern shows a net gain from economical operation

IN 1929, with gross revenues of \$383,000, the Rio Grande Southern earned a deficit of \$51,240 in actual operations; yet, in 1932, with only \$127,000 gross revenues, there was no deficit from actual operations, and with a relatively small traffic improvement in 1935, the road earned net revenues of nearly \$30,000. Between 1929, when the present receiver took over the property, and 1932, the lowest year in the road's finances, operating expenses were reduced more than 70 per cent.

During 1936 and 1937, expenditures were made to catch up with maintenance deferred during the lean years. Meanwhile, a substantial cash balance has been built up by the receiver, sufficient to assure the operation of the road under all ordinary contingencies, and the results in 1937 promised to permit substantial liquidation of the \$46,000 receiver certificates which comprise the only outstanding debt contracted by the receiver, and represent obligations incurred between the inception of the receivership and the fruition of the policies economies.

These results were attained by the substitution of local for absentee management, with an attendant drastic revision in operating methods, including the use of specially-built motor cars for a wide variety of services. Of equal importance is the fact that the employees of the Rio Grande Southern, in their efforts to keep the railroad going, actually do eight hours' work for eight hours' pay.

Physical Characteristics

The Rio Grande Southern is a narrow gage (3 ft.) line that serves the five southwestern counties of Colorado. It operates between Ridgway and Durango, 174 miles, including a branch to Telluride. It traverses extremely rugged country almost every mile of its track being on a grade, including 12 miles of 4 per cent grade and 38 miles of 3 per cent grade; the maximum curvature is 24 deg.

The roadbed is mostly unballasted dirt, and there is a bridge on the average of every 1.5 miles. The 111 bridges average 10 ft. 6 in. in height and 16 ft. 7 in. in length, the maximum length being 474 ft., and the maximum height 89 ft. A third of the line is in the maximum rainfall area of Colorado, the mean precipitation at Rico being 25.7 in., and washouts and slides have been frequent through the railway's history.

As a matter of fact, when the receiver took over the Rio Grande Southern late in 1929, he had only two dismembered fragments of what had once been a railroad, for in April, 1929, the road had been severed by a mud slide at Ames, Colo., where the track is perched on a mountainside, which buried the track under many feet of debris for a considerable distance, as shown in the accompanying illustrations.

Various estimates were made of the cost of opening the line, none less than \$30,000, an expenditure which was quite out of the question in the state of the road's finances at that time. After the line had been operated in two pieces for some time, the receiver devised a means of removing the slide, which cost only a few hundred dollars. To open the line by means of a ditcher on rails



The Ophir Loop on the Rio Grande Southern

would have been expensive, as the material would have continued to slide into the cut thus made for some time. Accordingly, a county highway ditcher was pressed into service, digging at various locations down the slope of the mountain, often a hundred yards or more from the track, until the slide was set in motion once more. This procedure was continued until the slide moved off the rails, leaving only debris that could be removed easily by pick and shovel labor.

Change In Operations

The Rio Grande Southern connects with the D. & R. G. W. at Durango on the south and at Ridgway on the north. During the years when it was managed by the D. & R. G. W., it was under the jurisdiction of the superintendent of that railway, with headquarters at Alamosa, Colo., 201 miles from the nearest point on the R. G. S. The establishment of a local superintendent's office at Ridgway, with jurisdiction only over the R. G. S., resulted in an average annual direct saving in

The Slide That Cut
the Railroad in Two



supervisory costs of \$15,000, apart from the indirect savings brought about by local rather than absentee supervision.

Labor Relations

When the receivership began, the R. G. S. was operated under the standard contracts with the railway brotherhoods. The receiver has continued to act in strict conformity with the provisions of the Railway Labor Act, and no wage cuts were made at any time during the entire depression in the pay of trainmen, enginemen or maintenance of way or equipment forces. Even when reductions were made on the major railroads, the R. G. S. continued the same basic rates it had always paid.

However, whatever the merits or demerits of the standard contracts on the trunk line railroads, the application of their provisions on a narrow gage line such as the R. G. S. resulted in such costly and unreasonable operations as to be absurd. For example, the passenger run between Ridgway and Telluride, a round trip of 90 miles, cost the company two full days' pay, frequently plus time and a half for overtime. The road was compelled to maintain hostler service costing about \$3,000 per year at the Rico enginehouse which was normally used by only one locomotive per day. Two brakemen were arbitrarily required on short freight runs on which even one brakeman could find little to do.

Accordingly, the contracts were modified, pursuant to the terms of the Railway Labor Act, but also in accord with the idea of getting eight hours' work for eight hours' pay. As indicated above, no attempt was made to reduce the basic rates of pay, but, if the railroad was to operate at all, adjustments had to be made in the working agreements.

The new flexibility of operation, unfettered by arbitrary and ruinous restrictions, permitted numerous economies. On its part, the management makes no unreasonable demands. Freight or mixed train crews are requested to perform such duties as, for example, pulling brush from the bridges crossing the Dolores river prior to flood stages, but this can hardly be termed unreasonable on a small road like the R. G. S. where 15 min. work of this kind by the train crew saves the prohibitively expensive operation of a work train and, at the same time, makes for safe operation during the recurrent floods. Perhaps the most important modification of the

labor contracts was that which opened the way for the operation of rail motor cars instead of steam trains. Without lifting the restrictions as to the number of men in the crew of such motor cars, the railroad could not have survived at all.

Equipment

During the early years of its history, the R. G. S. owned some freight cars and, at that time, the basis of freight car interchange between the R. G. S. and the narrow gage lines of the D. & R. G. W. was six mills



Severe Snow Conditions Are Met with in the Colorado Rockies



Type of Unit That Has Aided in the Recovery of the R. G. S.

per car mile. The last R. G. S. freight cars wore out about 1918 and since that time the R. G. S. has hired all its freight cars from the D. & R. G. W. at the rate of 50 cents a day, subject to certain storage allowances.

The R. G. S. once owned 16 freight and passenger locomotives and maintained a shop at Ridgway. In 1929, only six of these locomotives remained. The largest of these weigh 85,000 lb. They are narrow gage engines, having a rating of 115 tons on the 4 per cent grade. Two of these locomotives were rented to the D. & R. G. W., the other being stored in unusable condition in the abandoned shops of the R. G. S. at Ridgway. The railroad was renting power at a cost of from \$17,000 to \$40,000 a year. To correct this condition, the abandoned shops were rehabilitated, the locomotive in need of repairs was overhauled, and the R. G. S. began handling its traffic with its own power.

This resulted in a saving in locomotive hire of more than \$10,000 a year and a saving in maintenance of equipment of more than \$25,000 a year. Much of this saving in repairs may be attributed to doing the necessary work in a small shop, particularly adapted to and used solely for repairs to narrow gage equipment, and under local jurisdiction.

Train Operation

When the receivership began, train operation on the R. G. S. consisted of a nightly passenger run each way daily, at inconvenient hours, and freight operation as required. It was the general understanding that the inconvenient schedule was dictated by U. S. postal authorities to procure a special mail contract which then yielded about \$20,000 a year. The night operation of passenger trains was difficult and expensive, being actually unsafe under ice and snow conditions that frequently prevailed during the severe winter season. In addition, because of the inconvenient hours, few passengers rode the trains.

The receiver explained this situation to the postal officers, and, in February, 1930, a new contract was

signed providing for a gross payment of \$38,000 a year, and permitting the handling of the mail on daytime mixed trains. This change increased passenger revenues and reduced operating expenses and enabled the railroad to tide over the transition period until rail motor car service could be installed for all passenger, mail, express and l. c. l. freight.

Rail Motor Car Operation

An important use of the Ridgway shops was in building and adapting the motor equipment which is now used for all but carload freight service on the R. G. S. It was decided that the type of equipment best suited to mountainous narrow gage railroading in country as sparsely populated as that served by the R. G. S. would be light internal combustion cars adapted from highway equipment.

Motor No. 1, consisting of a Buick 6 equipped for rail service, was placed in operation on June 16, 1931, at a cost of \$850. This unit had an open body and carried mail and parcels only over the part of the line with the lightest requirements. Even so, it had paid for itself after a month's service. Motor No. 2 was placed in service a few weeks later. Late in 1931, Motor No. 3 was put in operation and this is now the standard type of rail motor car on the R. G. S.

These cars cost about \$2,500 each to build in Ridgway shops, and are powered with standard Pierce-Arrow motors. The methods employed in rebuilding these cars are similar. A 7-passenger Pierce-Arrow sedan, of 1926 model, is rebuilt to the width of an ordinary narrow gage passenger car, and has a capacity of 10 passengers. The chassis is remodeled to fit two four-wheel trucks of 36-in. gage. A light metal trailer, with a capacity of more than 10 tons, running on a narrow gage four-wheel truck, is permanently affixed to the power unit. Thus, the vehicle runs as a unit on three sets of narrow gage trucks, the center set of which contains the driving wheels. The overall length is 44 ft., the outside width 7 ft. 6 in., the length of the van 24 ft., and the total

weight 14,800 lb. The units are equipped with power brakes, special headlights and bells.

These units have a maximum speed of 40 m. p. h., and their schedule calls for an average speed of 20 m. p. h. They get 5.5 miles per gallon of gas, and carry their capacity load of passengers and freight up the 3 per cent grades in high gear, and over the 4 per cent grades in second.

These rail cars are operated by a motorman who is paid a flat monthly rate. The economies thus effected are obvious.

A narrow gage locomotive in passenger service consumes about one ton of coal, costing from \$2.25 to \$4, on each 20-mile run, whereas the motor unit uses four gallons of gas, costing between 60 and 75 cents for the same distance. The repair charge on steam locomotives on the R. G. S. amounted to about 14 cents per locomotive mile, or about \$21,000 for the 150,000 passenger locomotive miles which were necessary annually on the R. G. S. The repair cost on the rail motors has been less than 4 cents per motor mile, or about \$5,600 for the same annual mileage.

The weight of the average passenger train operated by the R. G. S. was as follows:

Locomotive	60 tons
Mail coach	12 "
Passenger coach	12 "
Baggage coach	12 "
	—
	96 tons

In comparison with the stress on the rails and ties of a 7½-ton motor vehicle, the saving in track maintenance is obvious.

Not only does the motor unit eliminate smoke, cinders and dirt, but it can be run faster with comparable safety. On the basis of actual experience on the R. G. S. the motors save at least 20 per cent in time.

Motor No. 1 has now been retired, but five other motor cars built in Ridgway shops are in daily operation. One of these is refrigerated and takes care of l. c. l. perishable traffic. In addition, a motor unit was specially built at Ridgway in 1935 to substitute for a steam work train. This unit has delivered ties and supplies, is used for inspection purposes and as a snow plow, and recently has assisted in the operation of a gasoline shovel purchased for ditching and derrick work.

Until 1929, the R. G. S. used the Durango yard of the D. & R. G. W. as its southern terminus, paying one-third of all expenses incurred there. In that year, a new arrangement was entered into whereby the R. G. S. was charged only in proportion to the number of its engines handled in and out of the enginehouse, while general yard and terminal expenses were charged in proportion to the number of R. G. S. cars handled in and out of the terminal. This resulted in an annual saving of \$7,500. When traffic began to increase in 1934, it became evident that still further economies could be effected at Durango terminal. Even after the saving referred to, the R. G. S. was still charged its proportion of the interest on the D. & R. G. W. terminal.

Accordingly, late in 1934, the R. G. S. built a terminal of its own in Durango. This was built with railway labor and much of the material used was already on hand at various places on the railway. The construction included the purchase of ground for a wye, the construction of a simple enginehouse to service the locomotives and motors and the building of a station. The total expenditure amounted to \$5,700. In contrast, the net saving in terminal expense in 1935, as compared with 1934, was \$7,214.

The officers of the Rio Grande Southern were faced

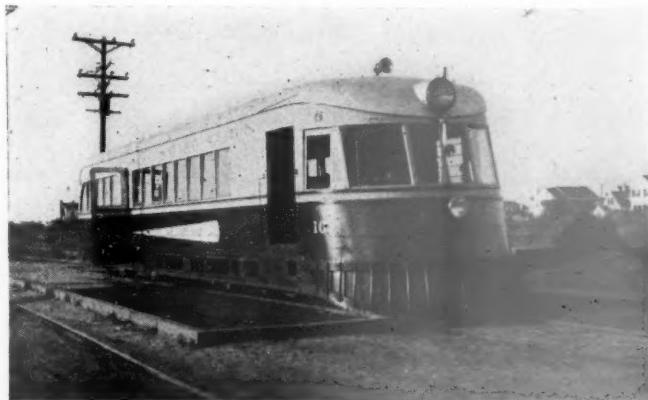
with many handicaps when they took over the property in 1929. Not a few of these handicaps seemed insurmountable at the time, but the feeling of responsibility to the people of the area served, and to the shippers, and particularly to the railway employees, brought forth the necessary ingenuity not only to keep the line in operation, but to make it pay.

High-Capacity Fast Freight Locomotives

(Continued from page 1075)

Cylinder and valve packing.....	Locomotive Finished Material Co., Atchison, Kan.
Rod packing.....	U. S. Metallic Packing Co., Philadelphia, Pa.
Piston head, piston rod and crosshead..	The Timken Roller Bearing Company, Canton, Ohio
Feedwater heater and pump.....	Worthington Pump and Machinery Corp., Harrison, N. J.
Injector.....	Wm. Sellers & Co., Inc., Philadelphia, Pa.
Superheater.....	The Superheater Company, New York
Circulators and arch brick.....	American Arch Co., Inc., New York
Staybolts.....	Flannery Bolt Co., Bridgeville, Pa.
Throttle.....	American Throttle Co., New York
Pipe covering for branch pipes to rear cylinders (Special Insubestos) and for auxiliary steam pipes (Insutape).	Union Asbestos & Rubber Co., Chicago
Lagging.....	Alfol Insulation Co., New York
Stoker.....	Standard Stoker Co., Inc., New York
Fire door.....	Standard Locomotive Equipment Co., Toledo, Ohio
Running boards; apron.....	Alan Wood Steel Co., Conshohocken, Pa.
Safety valves.....	Coale Muffler & Safety Valve Co., Baltimore, Md.
Gages:	
On car heater line.....	Star Brass Mfg. Co., Boston, Mass.
Feedwater pump and air.....	Manning, Maxwell & Moore, Inc., Locomotive Equipment Division of, Bridgeport, Conn.
On independent brake.....	United States Gauge Co., New York
Stoker.....	Ashton Valve Co., Boston, Mass.
Steam (main).....	Crosby Steam Gauge & Valve Co., Boston, Mass.
Heat regulating valve; Tyfon horn.....	The Leslie Co., Lyndhurst, N. J.
Copper pipe.....	Chase Brass & Copper Co., New York
Wrought-iron pipe for steam, air and water lines.....	A. M. Byers Co., Pittsburgh, Pa.
Blow-off cocks.....	The Okadee Company, Chicago
Cab signals.....	Union Switch & Signal Co., Swissvale, Pa.
Lubricators, distributors, and atomizers.....	Nathan Manufacturing Co., New York
Grease lubrication.....	Alemite Div. Stewart-Warner Corp., Chicago
Sanders.....	Graham-White Sander Corp., Roanoke, Va.
Speed recorder.....	Jones-Motrola Sales Co., Stamford, Conn.
Connections between engine and tender.	Barco Manufacturing Co., Chicago
Tender:	
Water-bottom frame.....	General Steel Castings Corp., Eddystone, Pa.
Trucks.....	Buckeye Steel Castings Co., Columbus, Ohio
Roller bearings.....	The Timken Roller Bearing Company, Canton, Ohio
Tight-lock couplers.....	National Malleable and Steel Castings Co., Cleveland, Ohio
Draft gears.....	Waugh Equipment Co., New York
Steam-heat connections, rear of tender.	Barco Manufacturing Co., Chicago

* * *



Norfolk Southern Rail-Bus at Cavalier Hotel Station, Virginia Beach. This Gas-Propelled Car Operates Between the Cavalier and Norfolk over the Former Electric Division

Recent Locomotive and Car Developments . . .

Polaroid Sight-Conditioning Windows

To make the view more enjoyable and the eyes more comfortable, the amount of light coming through Polaroid sight-conditioning windows can be regulated by the train passengers. These "variable density" windows, developed by the Polaroid Corp., Boston, Mass., have been installed in the observation-lounge car of one streamlined train, and several other installations are now in progress.

Polaroid is a flexible cellulosic sheet in which are imbedded some thousand billion crystals per square inch, all lying parallel. It combs out the light which passes through it, arranging the light waves so they all vibrate in parallel planes. When a second Polaroid film, with its parallel crystals at right angles to those of the first film, is placed in the path of the light, the vibrations cannot pass and no light gets through.

The sight-conditioning windows consist of two Polaroid discs mounted in glass, each having the general physical characteristics of the safety glass used in automobiles. The outer disc in each pair is set in a fixed position. The inner disc is supported on rollers or in an annular channel, in which it can be turned by a knob or crank.

Minimum to maximum transmission of light through the windows occurs with each 90 deg. rotation of the inside plate or four times for each complete revolution. The change in brightness is smooth and continuous from minimum to maximum transmission of light. By turning a knob the observer can make the view as bright as it would appear through extremely light sun glass or he can cut off the view altogether, or he can adjust the brightness to any point between these extremes.

As it must rotate, the inner Polaroid window has to be circular. The outer windows may be circular, square, or rectangular. The window discs are available in 18 in., 20 in., 24 in., and 27 in. diam-

eters, and larger sizes will soon be obtainable. Polaroid windows are furnished in either polished plate glass or in selected drawn glass, and the thickness is from $\frac{5}{8}$ in. to 2 in., depending on the mounting design. They are uniform in density and are free from obvious imperfections. Because the basic Polaroid film is produced in strips of 15 in. width, a fine seam, invisible at most window settings, marks the diameter of each disc.

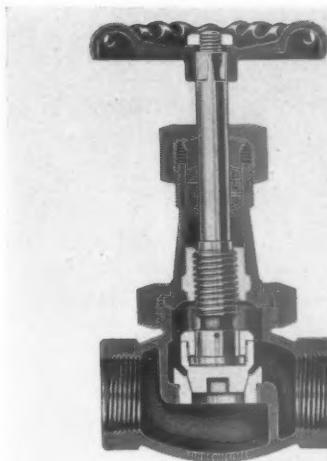
The light transmission through the windows in the open position is approximately 30 per cent, and in the closed position is approximately 0.5 per cent. Their color in the open and intermediate positions is approximately neutral with a barely noticeable absorption of blue light. In the closed position, they are a deep purple black. The absorption of solar radiation energy is about 73 per cent in the dark position. The windows have a shatter-resistance and other physical characteristics approximately the same as laminated automobile safety glass.

Improved Throttling And Blower Valves

The Lunkenheimer Co., Cincinnati, Ohio, has designed a 300-lb. bronze valve for saturated steam on locomotive blowers, feedwater-heater throttles, and other severe throttling services where frequent use results in rapid stem and bonnet thread wear.

These valves have a stainless-steel stem, the threads of which are in contact with a special alloy bushing cast in the bonnet. Reduction of thread wear to a minimum is indicated by tests of this combination of metals.

The blower valve stem has double threads for quick opening, while the throttling valve stem has regular threads for fine graduations. The seats and discs are made of Lunkenheimer NS-5, a hard nickel alloy that retains its hardness at high temperatures and is highly resistant to galling, erosion and corrosion. These valves are



Lunkenheimer 300-lb. Bronze Valve with Stainless Steel Stem and Cast Alloy Bushing

so designed that all parts, except the stem and bonnet, are interchangeable with A. A. R. valves of the same size.

The Lunkenheimer Company uses this same combination of metals in a line of 600-lb. steel valves, rated at 750 deg., for similar applications using superheated steam.

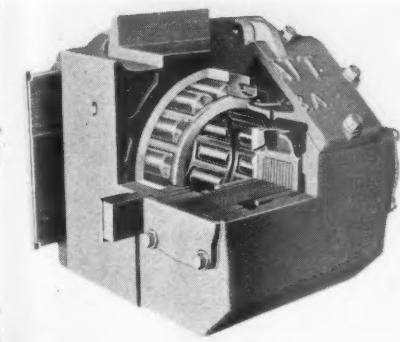
Roller-Bearing Journal Box

The roller-bearing journal box for Diesel locomotives designed by the Hyatt Bearings Division of the General Motors Corporation, Harrison, N. J., makes use of a shock-absorbing arrangement for the thrust bearing consisting of a leaf spring supported by self-aligning bushings. This spring exerts a predetermined pressure against the bronze thrust bearing and serves to absorb the impact of the axle end when rounding curves.

Except for the springing of the thrust bearing, the box is of the standard type K



With Polaroid Sight-Conditioning Windows, A Turn of the Knob Controls the Brightness of the Outside View or Cuts Off the View Entirely



Hyatt Diesel Locomotive Roller-Bearing Journal Box

design. The sectioned view shows the box with the journal removed. The front-end roller retainer ring has two ports off the vertical center line. These ports collect the lubricant deflected off the rollers and divert it through the drip pan integral with the cover plate to the face of the thrust block, eliminating the need for the conventional felt wick.

Combined Pilot And Steam Gage

The locomotive pilot gage facilitates the maintaining of a more uniform boiler pressure by indicating smaller variations within the range of the working pressure. In the improved dust-proof illuminated-dial locomotive gage 52-DI-5, the Ashton Valve Co., Boston, Mass., has combined the pilot and the usual steam gage into one double-dial gage.

One side of the gage has a dial which is direct reading from zero to the maximum pressure, and is graduated in the usual 5-lb. increments. The gage is mounted on the back head so this dial faces the engineman. On the other side of the gage, facing the fireman, is the pilot steam



Master Pilot Dial on the Ashton Combined Pilot and Steam Gage

dial, graduated in 2-lb. increments through a range of the last 100 lb. With this pilot steam dial reading, the fireman may easily detect the slightest fluctuations within the range of the working pressure. He may check his fire to prevent waste of steam through the safety valves, or accelerate his firing to prevent the reduction of pressure below the efficient and economical operating point.

This gage has white porcelain "non-gleam" enameled dials and a self-illuminating unit. It is made in standard sizes with graduations of up to 300, 400, 500, and 600 lb.

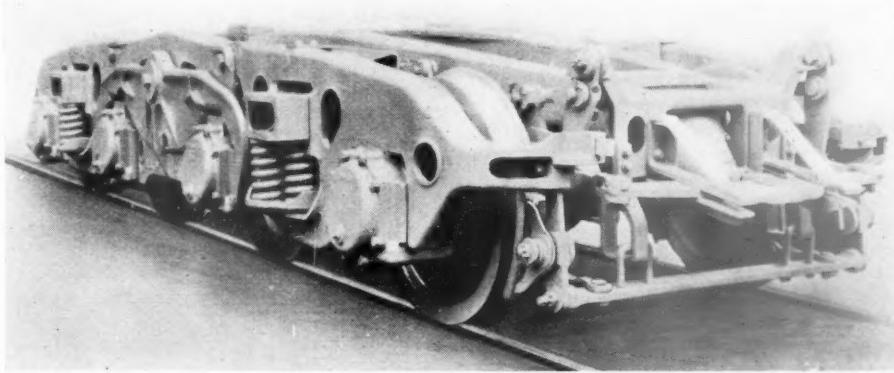
Eight-Wheel Tender Truck

The increasing demand for greater capacity tenders, higher speeds, and reduced wheel loads has been met by the Buckeye Steel Castings Co., Columbus, Ohio, in its

A. A. R. grade B steel castings. The clasp brakes for each truck are operated by two brake cylinders, one brake cylinder being mounted on each end of the center bolster casting and operating the brakes for one-half of the truck. The truck design is suitable for the application of either plain or roller bearings.

Hatch Closure for Refrigerator Cars

The illustrations show a new type of refrigerator hatch closure which eliminates the necessity for the separate wedge-shaped insulation plug. This plugless hatch closure is insulated and designed for frame or top-seal closure by using a special gasket of ultra-soft yielding material which is fabricated as an assembled unit. A double-flange around the inside edge of the gasket is provided for securing the gasket to the cover framing. The gasket is nailed to the



The Buckeye Eight-Wheel Tender Truck

development of the eight-wheel equalized tender truck. It was first used on the American Railroad's 6-4-4-6 locomotive, a description of which appears in this issue.

The principles of positive mechanical equalization of wheel loads under all track conditions, which have proved satisfactory on the Buckeye six-wheel tender truck, have been used in this eight-wheel truck with the center-equalizing unit extended to accommodate the two additional axles. These principles are: (1) Bolster system is always in a plane parallel with the tender body; (2) equalization is entirely independent of springs, spring hangers and bolts, and is not disturbed by breakage of these parts, and (3) as the side-frame system on one side of the truck acts independently of that on the opposite side, cross-equalization is provided and "corner" loading of the truck, due to track irregularities, is avoided.

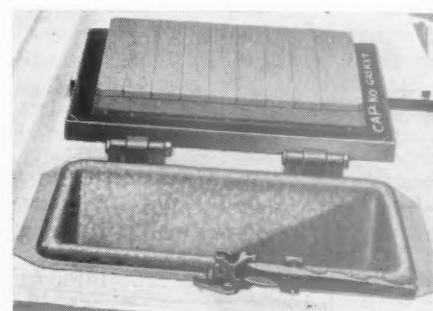
Transverse flexibility permits the truck to negotiate curves without developing excessive flange pressures and journal thrusts. The tender is supported on spring groups consisting of "soft," large-diameter, helical springs in which the harmonic action is controlled by frictional elements, providing an easy-riding tender at all speeds.

Light weight and economy are obtained by the simplicity of design and the use of

cover frame through the wide lower flange, and the upper narrow flange is thereby securely anchored in the slot provided for this purpose.

The operating lever mechanism is furnished completely assembled ready for riveting to the roof bracket.

This one-piece hatch closure and insulated gasket combined, eliminates the troubles experienced in keeping a tight closure with the 4-side wedge-shaped plug. It ends the trouble of removing plugs wedged in so tightly that bars or other tools must be used to pry them loose. By simply raising the CAP-KO hatch



CAP-KO Refrigerator Hatch Closure in the Full Open Position

cover, which can easily be done with one hand, the hatch is ready to receive ice.

The gasket, which is brine-proof, closes around the top surface of the hatch frame, the surface being rounded to shed salt or ice during loading, and to prevent water accumulating and freezing. The curved surface also increases the contact area for the gasket. Cinders or other foreign mat-

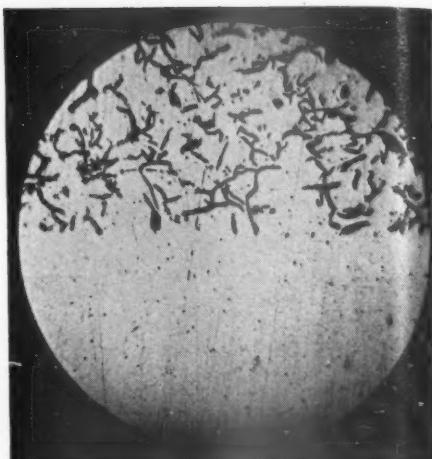
cumulation, the lever bearings are made of heavy brass tubing.

The CAP-KO refrigerator hatch closure is marketed by Holland Company, 332 South Michigan avenue, Chicago.

Duo-Cast Locomotive Grates Tested

It is commonly recognized that cast iron is the best metal for heat resistance in locomotive grates, but that the strength of steel is desirable for maximum shock resistance and freedom from breakage. With this thought in mind, the Standard Brake Shoe & Foundry Company, Pine Bluff, Ark., has perfected a method of casting locomotive grates with an iron upper surface and a steel base which perform satisfactorily the double function of resisting heat in that portion of the grates subjected to the highest temperatures and giving exceptional strength in the supporting base structure. Test sets of locomotive grates, made of Duo-Cast metal, as it is called, have been in service since 1935, and, while representing a somewhat higher first cost, are said to give at least four times the service life of grates of like design made of ordinary gray iron.

One important advantage which the manufacturer claims for the use of Duo-Cast metal in locomotive grates is that no particular type or design of grate is recommended, and Duo-Cast grates can be



Microphotograph of Unetched Section of Duo-Cast Grate, Magnified 90 Diameters and Indicates the Practically Perfect Fusion of the Two Metals

made from present patterns, with no change in a railroad's standard grate arrangement and design. The grate mold is simply poured with molten steel in the lower part to give strength where it is needed and then, after a specified time, the iron portion is poured, filling the mold into the risers. The iron used is a special heat-resisting metal known as Stanfire iron. The iron and steel are poured in such a way as to provide a practically perfect fusion of the two metals, as indicated in the

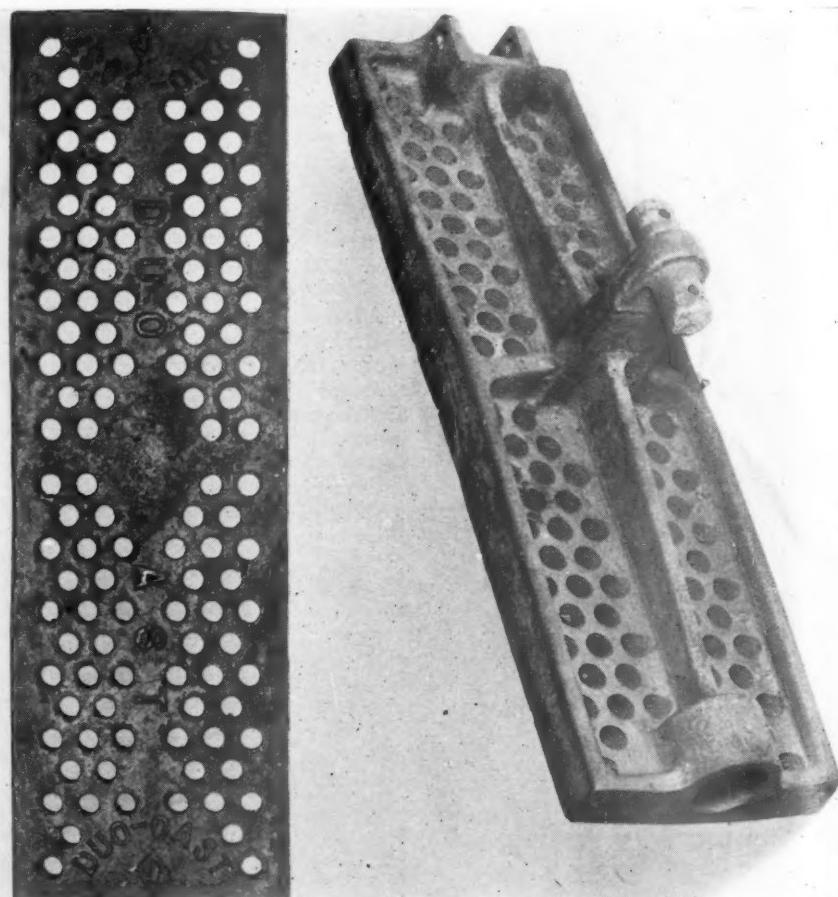
A Variable Hatch Closure Opening Gives Any Desired Degree of Ventilation

ter cannot get through to the ice chamber. These gaskets are said to have stood every test during four years of service on several hundred cars, and several thousand cars are now equipped.

The hatch cover is secured to the hatch frame by hinges at one side and by the operating mechanism at the opposite side, providing a space of fixed dimension for the gasket. The liberal lateral clearance permitted by this design prevents sticking or wedging of the closure. The completely fabricated cover, which is universal and interchangeable, is assembled with the hatch frame by inserting the hinge pins. No fitting is necessary to insure and maintain an air-tight seal. This modern closure saves maintenance cost by eliminating the repairing, refitting and adjusting now necessary with the old style plug.

The notches on the underside of the operating lever are for the purpose of providing any desired degree of ventilation. The hatch closure is raised to the desired height, and held in place by engaging the notch in the lever at that height with the hook on the cover bracket. The operating lever lies flat against the roof when the hatch is released. It is out of the way of trainmen and also out of the way of ice cakes or ice chutes when the hatch is being loaded. When the hatch is closed, the lever is laid over the cover, engaging the fulcrum on the cover bracket. Approximately 50 lb. pressure at the end of the lever produces in excess of 300 lb. on the gasket, compressing it approximately $\frac{3}{16}$ in. when the cover is locked. The lever is held down while the lock slide is pushed into place, after which the gasket pressure is released directly against the lock slide holding it firmly in place during transit.

The lock slide is so arranged that it opens by gravity when the hatch is opened and is thus in the correct position for locking when the hatch is closed. Slots for sealing with a standard car seal are provided in the lock slide, for both open or closed position. To prevent the lever from becoming inoperative because of rust ac-



Unretouched Photographs of Duo-Cast Locomotive Grate Removed for Inspection After Giving More than Four Times the Usual Grate Life

illustrations, thus making a grate in which the bottom portion of the grate body and all of the underframe are made of strong cast steel, and the upper portion of Stanfire iron to protect the steel from the heat of the firebed.

The successful combination of these two materials in a single casting necessitated a long period of laboratory research and



Polished Section of Duo-Cast Grate Showing Effective Union Between the Upper Iron and the Lower Steel Portions

experimentation, using various metal combinations and different pouring methods, before the proper fusion was effected. The principal difficulty was to secure a union of the iron and steel sufficiently strong to hold in spite of differences in coefficient of expansion of the two metals, and after this problem had apparently been solved

in the laboratory and foundry, it was necessary to prove by service tests that the fusion of the two metals was such that they would not separate in actual service.

One factor which helped was the fact that differences of temperature in the firebox and in the ash pan are roughly in the same proportion as differences in the coefficient of expansion of iron and steel. At any rate, service tests of Duo-Cast locomotive grates, made over a period of years, seem to prove that the two metals are effectively and permanently fused and that grates made of this material are adapted to give long service life, free from sagging, warping, or growth, which would be expected with all-steel grates, and without the burning and breakage commonly experienced with grates made of ordinary gray iron.

New Type of Radiation for Air Compressors

The problem of cooling compressed air between the air compressors and the main reservoirs on modern locomotives is becoming more difficult as space for the conventional pipe coils becomes more restricted. Moreover, there is considerable difference of opinion regarding the amount of radiation actually required. For example, one modern 4-8-4 type locomotive is equipped with 120 ft. of 1½-in. radiation pipe, whereas the same class of locomotive operating in the same climate and under approximately the same service conditions on another road, has only 20 ft. of 1½-in. radiation pipe because of lack of space to accommodate more.

To meet the need for more compact rad-

iation between locomotive air compressors and the main reservoir and also to provide variable capacity for summer and winter operation, the Wilson Engineering Corporation, 122 So. Michigan avenue, Chicago, has developed a new Grid type radiation unit or section, installed as shown diagrammatically in the drawing. The cores of these sections are alloy cast iron, factory tested hydrostatically to 250 lb. per sq. in. The fins are of aluminum, cast by a secondary process on the iron core. Calculations as to equivalent effectiveness of the Grid section and conventional piping have been checked by carefully conducted standing tests and indicate that one standard Grid section, 34½ in. long, furnishes the equivalent in radiating effect of 25 ft. of 1½-in. pipe, or 22½ ft. of 1½-in. pipe, thus making it possible to install a much greater amount of radiation surface within any given space. The weight of each Grid section is 75 lb.

To meet the requirement of variability, one or more sections is arranged in parallel to be cut in or out, as necessary, to avoid freezing. The first, or series, line of radiation is direct without obstruction, and with complete drainage from the compressor to the reservoir, thus assuring the absence of any hazard which might be occasioned by wrong setting of the valves, or by freezing. The parallel installation when required, is cut in by opening a shut-off cock and doubles the capacity.

The cost of the Grid section compares favorably with the cost of equivalent standard piping when mounted with fittings, brackets and with consideration for labor. Substitution of Grid sections for piping is recommended at times when locomotives are stripped in accordance with I. C. C. requirements, as there is then no extra labor

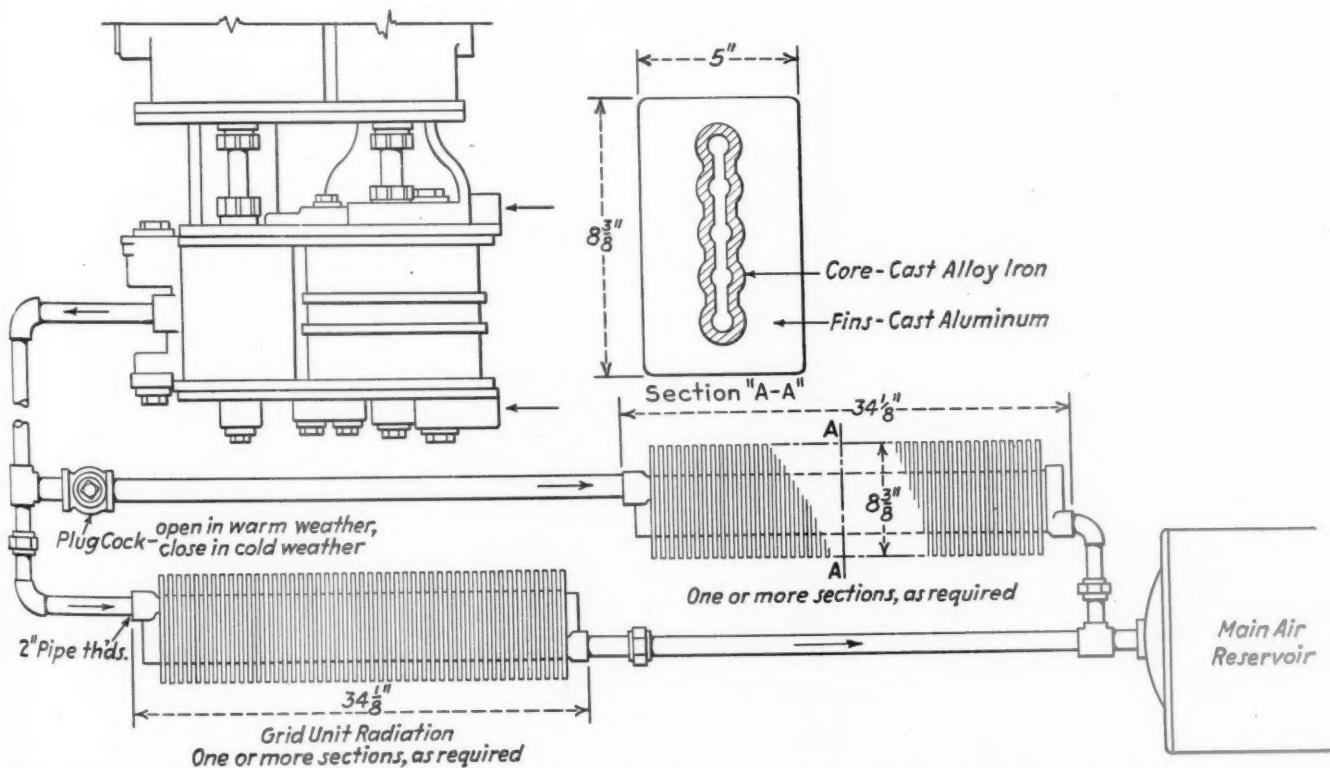


Diagram of Locomotive Air Compressor Cooling System Including Two Wilson Grid-Type Radiators Installed in the Delivery Line to the Main Air Reservoir

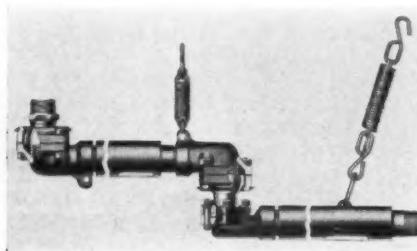
cost. In case the piping which is removed is in good condition and can be used elsewhere, it may also be said that the application of the Grid sections for compressor radiation does not entail additional investment cost.

The Wilson Grid type radiator units, designed to give compact air compressor radiation which may be easily varied in amount as desired, are said to be now in successful operation on locomotives of four railroads.

Horizontal Steam-Heat Connection

The FT-2 horizontal steam-heat connection, for use on streamline passenger equipment, has been improved by the Barco Mfg. Co., Chicago. Hardened alloy-steel wearing parts are used instead of the bronze wearing parts formerly applied, and 40 per cent additional flexibility has been provided.

The number of parts required in stock



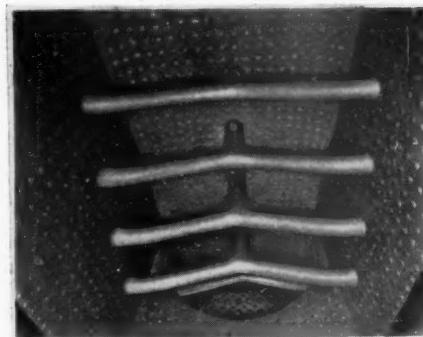
The Barco FT-2 Horizontal Steam Heat Connection for Streamline Passenger Equipment

has been reduced by employing more of the standard FT-1 connection parts than were used in the original FT-2 connection. This is particularly beneficial to railroads who may have both the FT-1 connection on standard equipment and the FT-2 connection on streamline equipment.

Security Circulator Brick Arch Support

The increasing lengths of modern locomotive fireboxes made it desirable for the American Arch Co., Inc., New York, to develop a brick arch support other than the conventional arch tube design. The Security Circulator is a brick arch support that is applicable to all possible lengths and shapes of fireboxes. Because the firebox width is definitely limited, the brick arch supporting members were placed crosswise, instead of longitudinally, of the firebox. These crosswise members, being spaced at convenient distances apart, may be installed in any length of firebox by varying the number of units.

The design of this arch support must assure a constant and rapid circulation of water as this unit is necessarily placed in the zone of highest firebox temperature and must be properly water-cooled. The



Installation of Security Circulators Before Arch Brick Application

circulator, of tubular construction, is in the shape of an inverted tee. As shown in the illustration, the two equal arms connect with the water legs through the side sheets, and the third arm connects with the water space above the crown sheet on the longitudinal center line. The vertical tube, delivering water over the crown sheet, has a capacity approximately equal to the combined capacity of the two horizontal tubes drawing water from the water legs. In addition to providing a substantial brick arch support and consistent circulation these units, placed at frequent intervals in the firebox, also add strength to the firebox structure.

Improvements in Journal Bearing

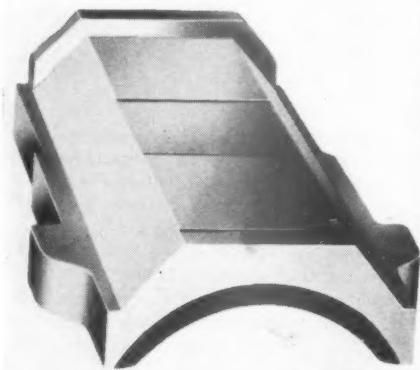
Still further improvements in the oil-tube journal bearing which is lined with Satco metal and made by the Magnus Metal Corporation, Chicago, have been made within recent months, as shown in the illustrations.

In this type of bearing, excess oil is collected in the slots in the receiving side of the bearing as the journal revolves, and is

forced up through tubes which release oil on the crown and leaving side of the journal. Originally these bearings were made with a flat back, a design which has been changed recently to a new type of depressed back in which the pads upon which the wedges rest are machined after being cast to give an accurate flat surface for the wedge bearing.

The design and manufacture of the lining has also been changed, the slots in the lining, which were originally cast, now being milled. This prevents the weakening of the lining adjacent to the inner edges of the slot by the formation of small shrinkage cracks which might otherwise develop at this point.

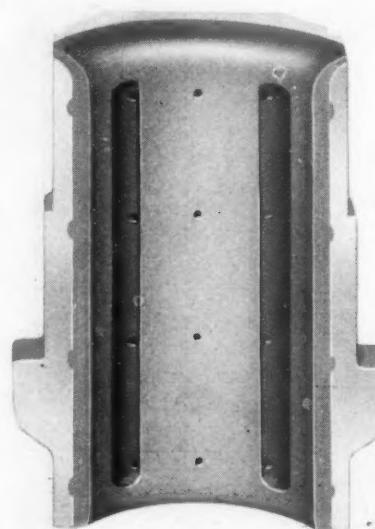
Magnus Satco oil-tube journal bearings are said to have shown excellent results on the Daylight Streamliner of the Southern Pacific. Installed with the Magnus lubricator pad to insure positive journal lubrication, these bearings have been in



Magnus Journal Bearing With Improved Design of Depressed Back

service for a period of two years during which approximately 8,200,000 car-miles were developed with only two cases of hot bearings, or approximately 4,000,000 passenger car-miles per hot box.

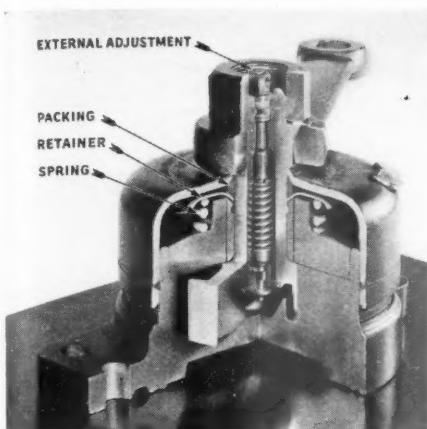
Forty new Southern Pacific steam locomotives, including 28 recently ordered from the Baldwin Locomotive Works and 12 from the Lima Locomotive Works, are also being equipped with Magnus lubricator pads on all driving journals, oil being used as a lubricator instead of grease. Magnus type bearings, Style No. 2, lined with Satco metal, are being used on the trailer, tender and engine truck journals of these locomotives, and also Magnus lubricator pads. The lateral faces of the boxes on these locomotives are Satco metal.



View Showing Oil Collecting Slots Now Formed by Milling

Shock Absorber for Car and Locomotive

Several improvements designed to permit ease of adjustment and to assure minimum service attention, are provided in the Houde shock absorber by the Houde Engineering Corp., Buffalo, New York. This shock absorber, for damping excessive lateral and vertical oscillations in passenger and freight cars and locomotives, has a



The Houdaille Shock Absorber Has a New External Adjustment

new external adjustment, spring-loaded relief valves and spring loaded packing. They have been standard equipment on many streamline trains, and these improvements were developed in actual service to meet exacting requirements.

Engine-Generator Reduces Car Weight

The latest contribution of the Waukesha Motor Co., Waukesha, Wis., to the railway industry is the engine-generator, an independently-operated generating unit designed to reduce weight by requiring small battery capacity and the elimination of generator-drive mechanism. It provides a steady supply of electrical energy regardless of train speed, car location, or standby service.

The engine-generator consists of a four-cylinder engine directly connected to a 7½-kw. electric generator. The Waukesha FC engine, propane fueled, has a 3¼-in. bore, 4-in. stroke, and 133 cu. in. displacement. The generator serves as an engine starter. A constant engine speed and generator voltage are maintained by a built-in governor. The propane fuel in-

sures a quick-starting engine and freedom from carbon deposits. Due to the use of a dry gas there is no crankcase dilution thereby eliminating difficulties in forced feed lubrication.

The generator is fully enclosed, providing protection against moisture, dust, and weather conditions. Dual field windings absorb a minimum of starting current when the generator is operating as a motor for starting the engine. An engine-cranking speed of 600 r.p.m. insures quick starting in low-temperature operating conditions. A built-in fan furnishes mechanical cooling of the generator.

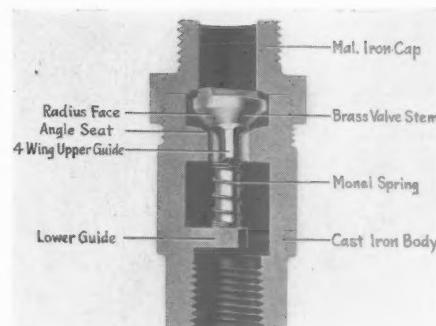
The engine generator is protected by a special housing and is supported by a cushion wheel mounting which allows the unit to be rolled out from under the car for inspection and maintenance operations. This mounting also serves to eliminate the transfer of noise and vibration to the car body.

The operation of the Waukesha engine-generator is entirely automatic and is controlled by a timing device which starts the unit at pre-determined time intervals, depending upon the battery used and the type of operating service. The unit may be set to start at 30, 60, or 120 min. intervals. If it starts, and the battery demand, either direct or for battery charging, is less than 35 amp. or other desired output, it will stop immediately. Manual start and stop switches on the control panel within the car are for convenience in testing, inspection, and maintenance.

The Waukesha engine generator has been in service since 1937. It is being installed on each car of four streamline trains now under construction.

Drain Valve With Low Closing Pressure

An automatic drain valve, designed to close at a 1 to 2 lb. pressure, has been developed by the George Manufacturing Co., Inc., Philadelphia, Pa. The valve has a plunger-type stem, guided at the top and bottom, with a spring that holds it in the open



The George Automatic Drain Valve for Exhaust and Blower Lines

position when there is no pressure on the valve. Steam, air or water, entering at the upper connection, exerts pressure on the top of the valve which, upon reaching a predetermined value, forces the valve down on the seat. When the pressure drops below 1 to 2 lb. the valve opens automatically and drains off the accumulation of water. The drain valve is suitable for use in steam exhaust lines from the air pump, stoker, or booster, and in soot and draft blower lines.

Stay-On Safety and Self-Locking Nut

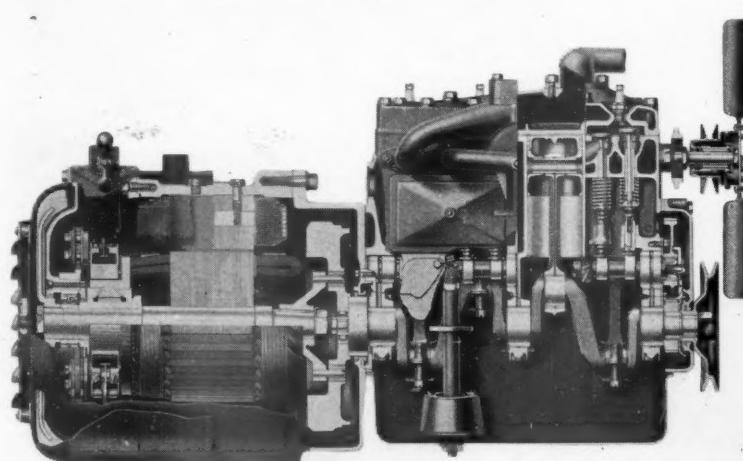
A self-locking nut, designed primarily for railroad use in car repair shops, has been developed by the Lamson and Sessions Co., Cleveland, Ohio. The locking action is automatic and positive. The locking portion of the nut consists of a raised crown section, slotted perpendicular to the axis



The Lamson and Sessions Stay-On Nut

of the nut, and distorted to form an elliptical ring section. This results in that portion of the nut being of a smaller diameter than the bolt or screw on which it is applied. The nut is heat treated to give the crown a permanent set and the tough resilient spring characteristic upon which the locking action depends.

When applied the nut spins on the bolt until the locking crown contacts the bolted surface. The nut is then further tightened with a wrench, forcing the crown to assume



Sectional View of Waukesha Engine Generator With Direct Drive

the circular cross-section of the bolt, and the gripping action of the crown on the bolt produces the friction necessary to prevent loosening of the nut.

The nut can be applied repeatedly to any standard thread bolt without the use of special tools and without loss of locking action or injury to the bolt threads. The nut can be made of aluminum and its alloys, brass, bronze, and stainless steel.

Tank Car Built with Longitudinal Seams

Savings in direct labor costs of approximately 11½ per cent are said to have been

built to fit the framing members of specific types of car equipment, and are designed for rapid application and removal in the event of major repairs to the car.

The panels have a framework of waterproof fibreboard insulating material in a series of tiers which also serve to anchor securely the crumpled layers of Alfol aluminum foil. The panel edges are made flat or offset to fit between or around the car framing, and are equipped with hair-felt gasket strips. The gasket strips have a cushioning effect which allows for slight variations in car frame dimensions, and assures a snug seal at all edge areas. The panels are covered on one or both sides with reinforced jacketing which consists of Alfol aluminum foil asphaltically bonded to treated-cork kraft-paper backing. The



Applying Alfol Insulation Panels to a Refrigerator Car

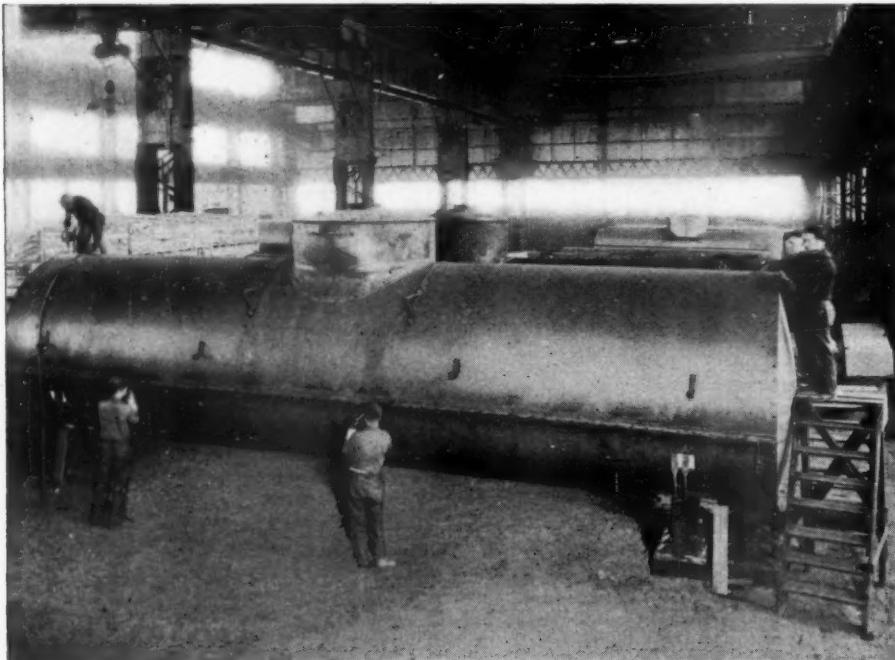
nature of the interior assembly, and coverings assures odorless and fire-resistant qualities, and eliminates the problem of moisture absorption.

Locomotive Tank Water Level Indicator

The Ashcroft American tank level indicator, made by the Locomotive Equipment Division of Manning, Maxwell & Moore, Inc., New York, eliminates the necessity of an engineman leaving the cab to measure the water level in the tender. This gage, mounted in the cab, indicates the height of the water in the tender at all times.

The gage is connected to the bottom of the tank by a pipe. A small continuous flow of air is admitted to this pipe through an air pipe connection to the gage, displacing the water from it, and establishing an air pressure in it equivalent to the liquid head existing at the end of the pipe. This same pressure exerted simultaneously in the bellows inside the gage actuates the hand, and indicates on the dial the height of the water in the tank.

The bellows expands on the slightest pressure change and this movement is multiplied so a variation of 1 in. in the tank water level can be detected. The 5-in.



Application in Tank Car Construction of Wide Sheets Made by the Republic Steel Corp.

made by the use of wide sheets in the construction of tank cars by the General American Transportation Corp., Sharon, Pa. These sheets, ranging in size from 50½ to 88½ in. are a product of the Republic Steel Corp., Cleveland, Ohio.

Because the width of the sheets can be run longitudinally there is only 65 ft. of welding as compared with 120 ft. in the ring-type construction. All the seams on the outer jacket are welded, as are the steel angles used to bolt together the upper and lower sections. This construction improves the appearance of the car and provides a larger area for the application of the stencil or company name.

Unit Insulation For Refrigerator Cars

The Alfol Insulation Co., Inc., New York, producers of aluminum-foil thermal insulations, has developed a pre-fabricated panel-form insulation for application to refrigerator cars. These panels are custom-

entire assembly is held together with pure aluminum nail fasteners and fibre washer plates, so located as to make the entire assembly self supporting, yet sufficiently flexible to endure weave and torsion without any strain. No nailing or similar anchorage is required while the lining or sheathing is being applied, as the snug fit holds the units in position.

The reflective jacketing used to cover the panels increases the insulative effect, in combination with proper air spaces, equal to about ¾ in. of insulation. Thus a 3 in. panel thickness, with Alfol jacket on both sides, is equivalent to 4½ in. of insulation between the car sheathing and the lining.

The panel units are extremely light in weight and make possible the elimination of tacking strips, cleats, and separate insulating papers ordinarily required. The light weight and low specific heat of the materials used in the panels effect quicker pre-heating and pre-cooling of the cars. The high purity of 99.5 per cent of the aluminum foil, which is coated with lacquer, guarantees its permanence. The metallic



The Ashcroft Tank Water Level Indicator

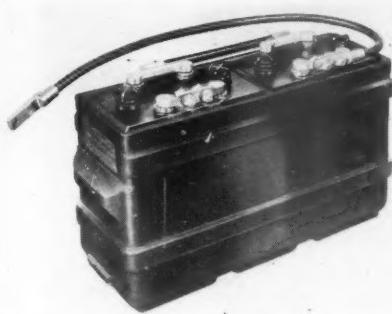
dial is regularly graduated from 0 to 7 ft. with 2-in. sub-divisions. The case is of iron with a threaded cast-bronze ring of dull, flat, non-glaring finish. The diameter of the back flange is 6½ in. The standard dial is aluminum with etched black figures and graduations, but when specified, it is available in black with etched white figures and graduations. The two connections at the bottom of the case have ¼ in. male National pipe thread.

The entire internal assembly is a self-contained unit comprising the bellows and movement mechanism, a built-in air-pressure reducing and relief valve, a strainer in the inlet, and a filter between the reducing valve and the tank connections. A safety disc in the back of the case prevents the accumulation of air pressure inside the case.

Air Conditioning and Car Lighting Batteries

The monobloc KALD battery has been designed by the Gould Storage Battery Corp., Depew, N. Y., to meet the demands of the air-conditioning apparatus and the lighting of modern railroad cars. They are of Gould Kathanode construction with Durapor separators, and are assembled in hard rubber monobloc containers.

The Kathanode principle of cell construction affords a sheathing of glass fibres to guard against the loss of the useful, power-producing material which is essential to maintain the capacity and life of the battery. As less space is needed for lost active material, more can be devoted to improved electrical efficiency. Both positive and negative plates have been increased in thickness and plate separation



Gould KALD Battery With Monobloc Container

has been increased, permitting a more freely circulating electrolyte to meet the sudden heavy loads encountered in air-conditioning service.

The Durapor separators provide insulation of heat-resistant porous rubber. The deep, open channels, made by the surface grooving, permits an abundance of free electrolyte to be in close contact with the active material. Carbonization and destruction of fibres, as encountered in wood separators due to excessive temperature conditions and higher gravities of electro-

lyte, are not experienced with the Durapor separators.

KALD batteries are available in capacities ranging from 200 to 1,000 amp.-hr. with a specific gravity of 1.225 and from 240 to 1,200 amp.-hr. with a specific gravity of 1.250. A type KALD 35 having a capacity of 1,020 amp.-hr. with a fully charged specific gravity of 1.250 may be placed in a standard A. A. R. battery box. Standard specific gravity has been established at 1.225 at 77 deg. F., but where greater capacity is required, the same battery can be furnished with a specific gravity of 1.250. This can be safely used because Durapor separators are specially resistant to the action of the electrolyte.

Locomotive Saddle Tanks of Bronze

Saddle tanks for steam or electric locomotives must be constructed of a material that is capable of withstanding shock, vibration, and corrosion. An eastern railroad has recently constructed several locomotive saddle tanks of Chase Olympic bronze.

This bronze, made by the Chase Brass and Copper Co., Waterbury, Conn., is a high-strength copper alloy, having in addition to exceptional welding properties, a corrosion resistance equal to that of copper. The bronze tanks were welded by the carbon-arc method with a filler rod of the same composition. This procedure produced solid welds of uniform strength that would withstand the vibration prevalent in railroad service.

Safe-Grip Ladders and Grab Irons

The rungs of Safe-Grip ladders, grab irons and hand-holds have been designed by the Wine Safety Appliance Company, Toledo, Ohio, to provide a sure, safe-gripping surface for the hands and to prevent the slipping of the hands and feet. The figured surface of the rungs is not sufficiently rough to injure a man's hand yet will prevent slipping even when they are wet or icy. The cross-sectional design of the rungs is such that the hand will not rotate after it has gripped the surface.

As indicated in the illustration, the rungs interlock through both legs of the ladder stiles and are retained in position without

the use of rivets. They are held, horizontally and vertically, under spring tension and cannot become loose as long as the ladder remains fastened to the car. Damaged rungs can be replaced by the removal of the bolts of only one stile.

Various designs of grab-irons are made with the Safe-Grip surface, and special designs are furnished for roof corners and caboose cars on request. All these items conform to the United States safety appliance standards.

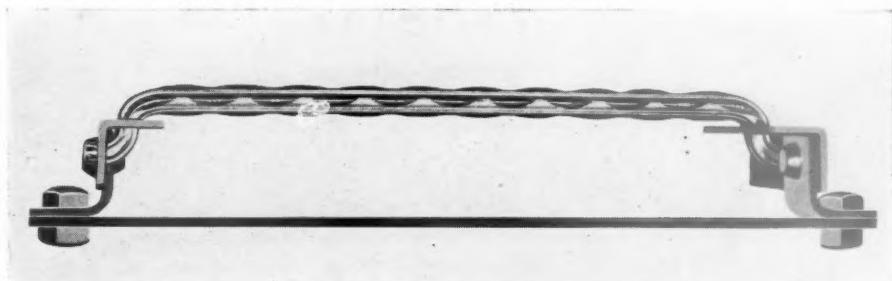
Special Insubestos Pipe Covering

Unarco special Insubestos pipe covering, made by the Union Asbestos and Rubber Co., Chicago, has the same general char-



Top: Unarco Special Insubestos Pipe Covering Construction. Bottom: Its Application to a Curved Pipe Section

acteristics as the regular Wovenstone pipe covering. It consists of an asbestos insulating medium enclosed in a waterproofed asbestos outer jacket with hooks provided for lacing securely to the pipe. However, to withstand higher temperatures, the Insubestos pipe covering is made with 100 per cent Amosite asbestos instead of the ordinary asbestos used in Wovenstone. This insulating medium is of a woven



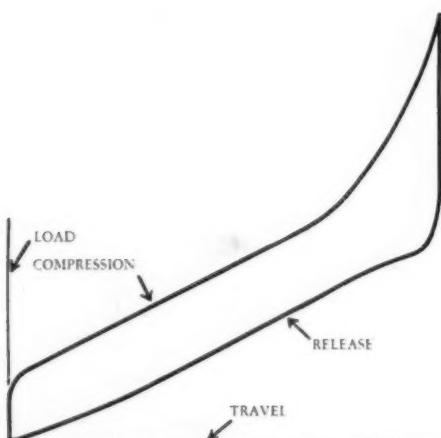
The Rungs of Safe-Grip Ladders Interlock Through the Legs of the Stiles

construction, and because of its strength, the jacket and asbestos may be applied separately. This facilitates its application to locations with extreme curvatures and limited clearance.

This insulation is generally applied to large piping such as outside main steam pipes on articulated locomotives, feed-water heater and booster pipes. For large pipes the Insubestos pipe covering is furnished in sections to fit the curved sections.

Snubber for Bolster Spring Group Control

A study and comparison of "bounce-test" curves and the lading damage factors of various designs of snubbers was made by the Symington-Gould Corp., Rochester, N. Y. Their research indicated that the maximum protection to lading and equipment was afforded by a snubber the fric-



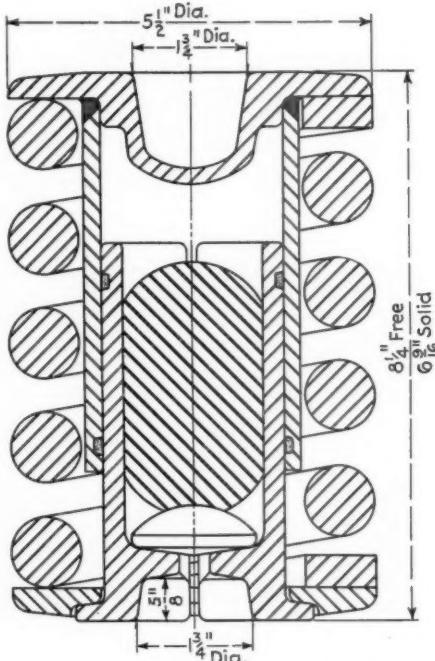
Compression and Release Curve of Symington-Gould SBR Type Snubber

tional resistance of which to closure remains substantially constant throughout the greater part of its closing stroke, and then is amplified rapidly toward the end of the stroke as positive protection to the spring group against becoming solid.

This characteristic of the Symington-Gould SBR type snubber is shown by the accompanying compression and release curve. For about 70 per cent of its closure stroke, the increase in closing resistance is only that offered by the surrounding helical spring. This is accomplished by the

comes in contact with the spherical portion of the sleeve top, further closure compresses the rubber core vertically, thereby increasing its pressure against the friction shoes with a resulting upturn in the compression curve. On release this added friction increment is first relieved, and thereafter the release curve follows a line substantially parallel to the compression curve.

The SBR snubber is simple in construction, and its rugged design is indicated by its performance under a fatigue test in which it withstood one million compressions with no appreciable wear or reduction in static capacity. The body of the shell is of steel tubing, welded to a steel cap and subsequently case-hardened. The bottom ring and the three friction shoes are of heat-treated alloy steel. The rubber core is of brine- and oil-proof composition, unaffected by the degree of heat encountered in service, and its normal expanded diameter is greater than the internal diameter of the three friction shoes. The external dimensions of the snubber are the same as those of a standard helical spring, one of which it replaces in the usual spring group.



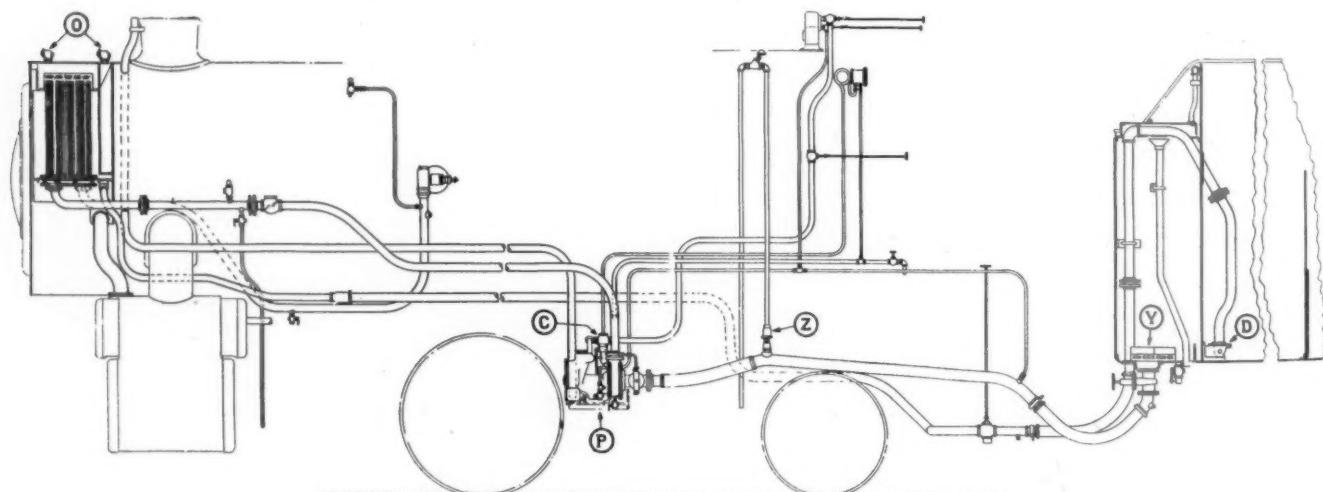
Sectional View of Symington-Gould SBR Type Snubber in Free Position

use of a cylindrical shell and parallel friction shoes the expanding pressure of which against the inside of the shell is determined solely by the pre-compression of the rubber core, and is unaffected by vertical closure up to about 70 per cent of the stroke. The lower end of the rubber core rests on the convex spherical surface of a filler plug supported by internal projections of the friction shoes. Pre-compression of the core between the shoes on the assembly produces a convex bulge at the upper end. When the snubber is closed to a point where the bulging top of the core

Feed-Water Heater System Modernized

With simplicity, lower cost, and improved performance as objectives, the J. S. Coffin, Jr., Co., Englewood, N. J., has made several changes in the Coffin feed-water heater system. The control valve has been modified to insure faster starting of the pump and has been removed from the cab and incorporated with the centrifugal pump and strainer into a compact assembly as shown at C and P in the illustration. The ejector and piping has been eliminated. The duplex air valve has been adopted, as shown at O, and an improved suction line vent located at Z. Auxiliary heater compartment piping with a new suction filter is applied at D and Y. The piping has been simplified throughout the entire system.

As determined by tests, the new arrangement is said to have several advantages not present in existing Coffin feed-water heater

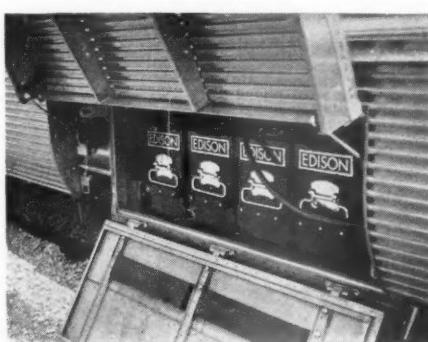


The Chart Indicates the Changes Made in the Coffin Feed-Water Heater System

systems. Increased acceleration in the starting of the pump is obtained at a lower starting pressure. The pump uses steam only when feeding the boiler, and its idling is no longer required. The elimination of the ejector saves the steam formerly required for its operation. Better venting of the heater prevents the formation of soot, and increases heat transfer efficiency. The suction filter separates oil or other foreign matter from the feed water before it leaves the tender. Possible risk of water damage to the cylinders is reduced to a minimum, and the elimination of many small pipes simplifies maintenance.

Battery Assembly for Air-Conditioned Cars

To meet the need for increased power and capacity on new air-conditioned cars with a minimum increase in weight, a new al-



The Edison Storage Battery Assembly Consisting of 50 G22H Cells

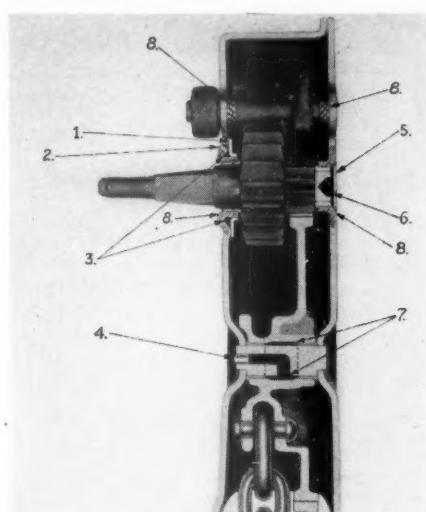
kaline battery assembly has been developed by the Edison Storage Battery division, Thomas A. Edison, Inc., West Orange, N. J.

The new assembly consists of 50 G22H cells giving a 64-volt or 32-volt battery as desired, with eight-hour capacities of 622 and 1,244 amp. hr., respectively. Normal discharge rates also are larger than for equivalent A-type batteries, being 164 and 330 amp., respectively.

Improvements in Freight-Car Brake

The Ajax Hand Brake Co., New York, has made refinements, as shown in the illustration, in the lubrication and bearings of the Ajax hand brake for freight cars. A grease-retainer ring is welded to the housing at 1 and is a press fit on the outside of the bearing extrusion. A grease pocket at 3 has a self-closing oil hole cover at 2. The large grease pocket 6 is packed with grease and sealed in when assembled. To insure ample lubrication for axle and gear, increased grease area is provided at 7 which also has a self-closing oil hole cover 4. Extruded bearings at 8 make larger and smoother bearings.

The observation of brakes in service



Sectional View of Ajax Hand Brake

having these refinements, indicate no appreciable wear in the hand brake mechanism during the life of the car to which they are applied. The lubrication and the large bearings with close tolerances assure an easy-working brake and minimum wear.

Water System Filling Valve

The Type B water filling valve was designed by the New York Air Brake Co., New York, to provide a simple, compact, and easily-operated means for filling water systems on passenger cars. A valve for this purpose must perform a double function. In the open position it must cut off the supply of air to the water tank, vent the remaining air to the atmosphere, and provide an opening through which water may enter. In the closed position the water inlet must be sealed, and pressure restored in the tank.

The body of the Type B water filling valve is connected to the car water tank and contains the water inlet. The inlet is protected from dirt and other foreign material by the outside cover, which swings around a pin to open. A rubber-seated



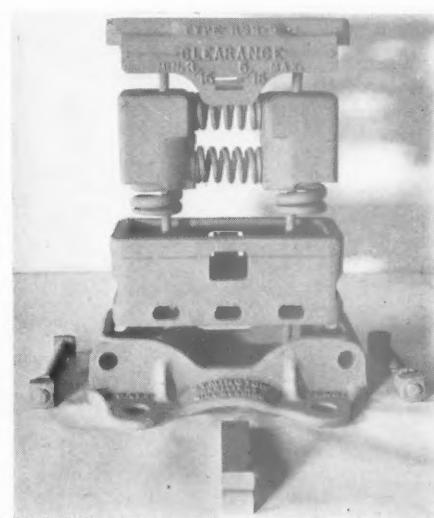
New York Air Brake Type B Water System Filling Valve

check valve, held to its seat by a torque spring, is provided in the inlet to retain the pressure within the system. This check valve opens inwardly when the filling nozzle is thrust into the inlet. A three-way plug cock, bolted to the side of the body, is connected to the reducing valve and the air line to the water tanks, and is provided with a vent. In the closed position the cock handle swings over the water inlet to contact the cover and hold it in place. In this position the reduced-pressure air supply is connected to the water tanks. In the open or filling position the cock handle swings away to permit opening of the cover, the reduced-pressure air supply to the water tanks is cut off, and the air remaining in the tank is exhausted to the atmosphere.

This valve is used with the conventional passenger-car water system. The Type B water filling valve and the Type A which preceded it, has been used mainly on streamline trains.

Constant Contact Truck Side Bearing

Clearance is usually provided between truck and body side bearing in order that cars may negotiate warped track without danger



The Symington Side Bearing Partially Disassembled

of derailment. The lack of inter-control between the trucks and the car body permits lateral oscillations and nosing of the trucks and excessive roll of the car body. The Symington-Gould Corp., Rochester, N. Y., has designed a resilient constant-contact side bearing to provide the necessary control of the truck and car body action with no appreciable increase in the resistance to truck swiveling.

This side bearing consists of a base plate or receptacle, a housing containing the springs and friction-elements which render spring action non-harmonic, and a cap casting. The movable friction elements within the housing have case-hardened wearing surfaces and the cap and housing are heat-treated.

On application, the housing is set with the requisite amount of shims so that, with the cap in contact with the body side bearing and the car on level tangent track, there is $\frac{1}{4}$ in. clearance between the contacting portions of the cap and housing. The side bearing may close against spring pressure and frictional resistance to the extent of this $\frac{1}{4}$ in. clearance, after which it functions the same as a plain solid bearing. In normal position with $\frac{1}{4}$ in. clearance, the springs are under sufficient pre-compression so that a $\frac{3}{8}$ in. follow-up of the bearing cap is possible before the upward movement of the cap is arrested by the transverse retainer bars. This insures constant contact at all times.

The bearing in its standard form for A. A. R. freight truck bolsters is shown in the accompanying illustration. If desired, the base plate or receptacle can be cast integral with the bolster. The side bearing can also be furnished with special base plate or housing to suit four- or six-wheel passenger trucks.

Duplex and Nicholson Syphon Application

The Duplex syphon is a development of the conventional Nicholson thermic syphon. These syphons, made by the Locomotive Firebox Co., Chicago, are shown in the illustration in an arrangement suitable for a wide firebox that is not equipped with a combustion chamber. In a medium width firebox, two Duplex syphons only are used, being constructed and applied like the right and left syphons shown in the illustration, while the center syphon is of the conventional Nicholson type. Installations of three Duplex syphons are made in boilers equipped with a combustion cham-

ber. With this arrangement two conventional Nicholson syphons are used in the combustion chamber making a total of five complete syphons in the locomotive.

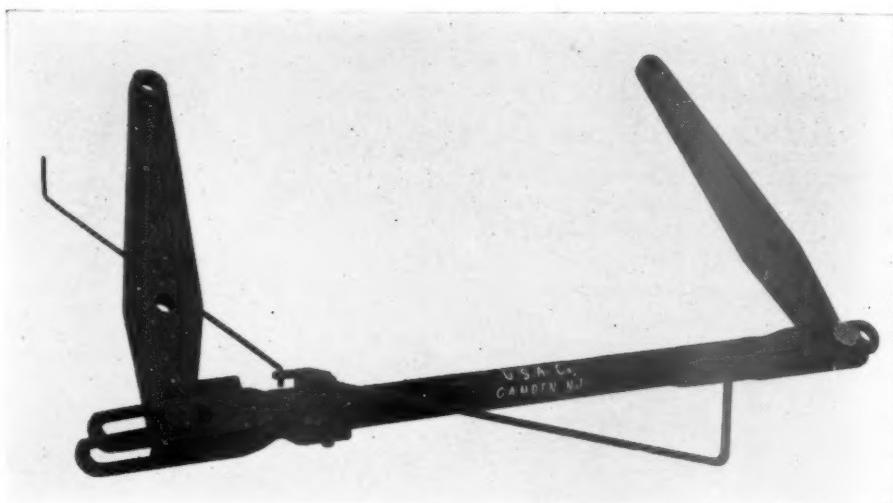
Slack Adjuster Keeps Piston Travel Uniform

The Universal slack adjuster is designed to maintain a uniform piston travel by taking up slack as fast as it is created by

has no adjustable parts. Cleaning can be accomplished in the same time it takes to replace a set of standard spreaders.

It is applied by replacing standard spreader rods without changes in the standard brake rigging. It is also interchangeable and can be used on plank or plankless trucks by reversing the adjusting links.

When brake shoes require replacement, the brake rigging is slackened by pulling on the release rod provided on both sides of the car. This allows the adjuster to return to its starting position. After the



The Universal Slack Adjuster With Spreader Rods

brake shoe wear and to limit the range of piston travel to $\frac{5}{8}$ in. This results in a reduction in the variation of braking power during the life of the brake shoes.

This slack adjuster, made by the Universal Slack Adjuster Co., Camden, N. J.,

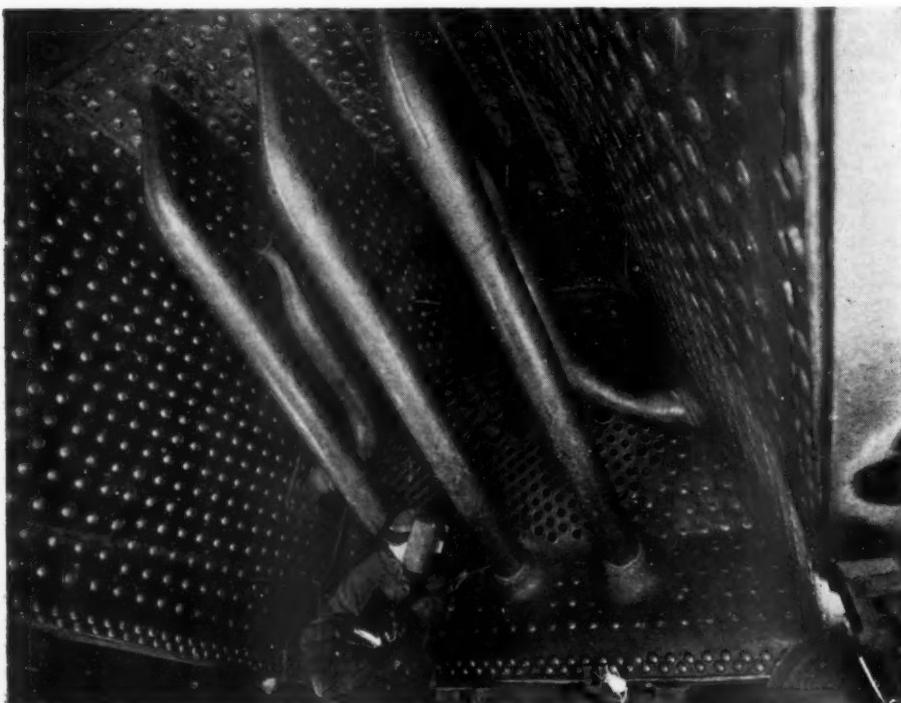
brake shoes have been replaced, the first applications of the brakes automatically adjust the brake cylinder piston to its standard travel. The necessity for hand adjustment is eliminated, and a saving of time and increased safety is effected.

Glass Wool for Railroad Use

Fiberglas is glass in fibrous and textile form. It is available for the insulation of railroad equipment and as a textile for window curtains and drapes, head rests, and table cloths. It is produced commercially by the Owens-Corning Fiberglas Corporation and is sold to railroads, car builders, and associated industries, by the Gustin-Bacon Manufacturing Co., Kansas City, Mo.

This glass wool has characteristics not usually associated with glass, for instead of being hard and brittle, it is soft and flexible. In its production, molten glass is drawn into long, fine, flexible fibers to form a mat of light-density wool. The fiber diameter may be varied, by precise control, from approximately .0003 in. to a coarse fiber of approximately .001 in. The length of the fiber varies with the control from short fibers averaging 4 in. in length to long fibers 15 in. to 20 in. in length. Only the finer fibers are used for thermal insulating wool products.

Fiberglas insulation is furnished in blanket form up to 10 ft. in width and 50 ft. in length. These have facings of plain



Two Duplex Syphons and Conventional Center Syphon in Wide Firebox Without Combustion Chamber

or flame-proof muslin, Sisalkraft paper, hexagon wire, or a glass bonded sheet. Locomotive lagging is supplied in a permanently compressed block which may readily be fitted to the boiler shell.

Spring Washer for Locomotive Bolts

The Hy-Crome spring washer for locomotives was designed by the Eaton Manufacturing Co., Cleveland, Ohio, to reduce the loss of engine hours caused by loose bolts. These spring washers differ en-

tion of a unit casting in this driving box, made by SKF Industries, Inc., Philadelphia, Pa., makes possible a reduction in weight without loss of strength or rigidity. With this type of housing, the box can be slid off the bearing and supported on the center part of the axle for a bearing examination. With a self-aligning bearing, once the housing is removed, an inspection can be made by swiveling the outer race of the bearing and uncovering the rolling elements. Periodic examinations can therefore be made when the wheels have been removed from the locomotive. The design also permits the adaptation of any of the various kinds of lateral motion device.



The Eaton Hy-Crome Spring Washer

tiely in construction from the conventional spring washer in providing definite locking features, distributed over a considerable reactive range without an increase in the free height, making the present bolts an adequate length. The deflected ends make possible their continued use and the backing off of the nut without damage to the bolted surfaces. The manufacturer conducted considerable testing and research work to determine the correct comparative sections of steel to meet specific requirements for every bolt size.

One-Piece Roller-Bearing Driving Box

The SKF roller bearing driving box for steam locomotives utilizes a one-piece electric-furnace steel casting. The incorpora-

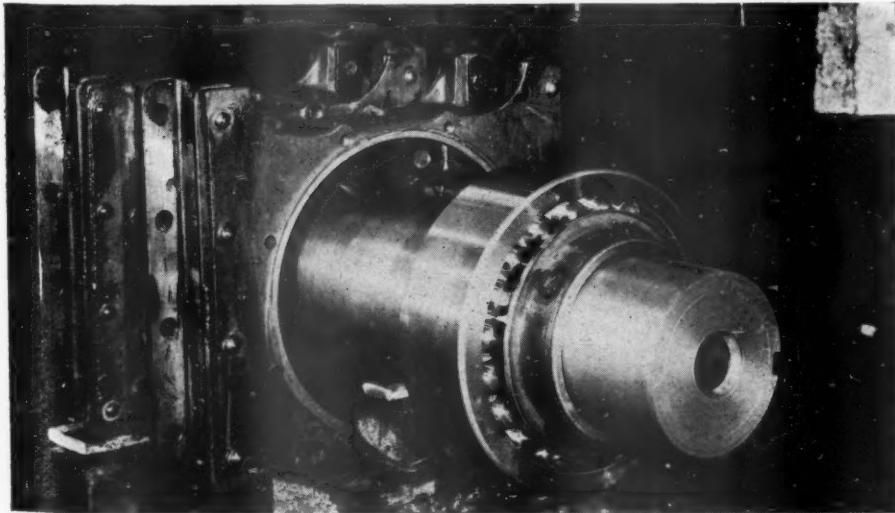
Chilled Iron Wheels With Better Rim Support

The Association of Manufacturers of Chilled Car Wheels, Chicago, has, during the past year, completed new designs of



Bracket-Type Chilled Car Wheel

chilled iron wheels for 40-, 50-, and 70-ton equipment. They are all of the bracket type which gives adequate flange support and permits the movement of the plate to-



SKF Roller-Bearing Driving Box with Unit-Cast Housing

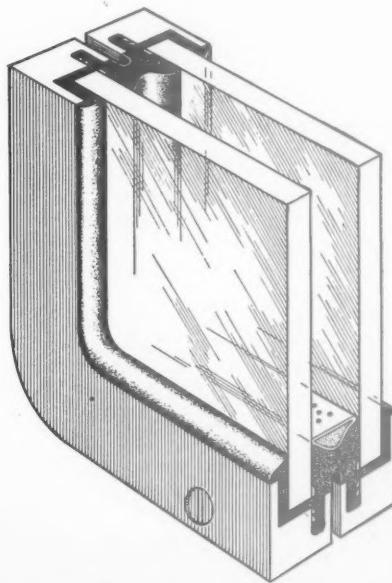
ward the rim, thus providing for better rim support.

These designs have been submitted to the A. A. R. Wheel Committee and will be presented by the committee for consideration at the coming annual meeting.

Double-Glazed Sash for Air-Conditioned Cars

One of the important problems in the building of air-conditioned cars is the design and construction of window sash. Windows must be tight, yet their maintenance and replacement should be easily and quickly accomplished. The double-glazed sash, with an inner-compression seal, made by the O. M. Edwards Co., Inc., Syracuse, N. Y., has these features.

The two panes of glass, set in metal frames, are spaced $\frac{1}{2}$ in. apart, and are separated by two abutting, removable rubber strips. The inner sash is suspended by hinges of a floating pivot type which take the major portion of the weight when the sash is opened. The inner sash is compressed to the outer sash by several spring-actuated "compressionizers." They are spaced around the sash to maintain and equalize the pressure seal thus creating the Edwards inner-compression seal. The amount of pressure, exerted by each com-



Sectional View Showing Construction of Edwards Double-Glazed Sash

pressionizer, can be varied, and the sash is easily and quickly opened by releasing them with a quarter turn of a screwdriver and raising the sash on its hinges.

Dehydrating tubes are located within the sealed air space, and as they are independent of the sash structure, there is no breaking of the permanent inner seal. The transfer of heat through metal is negligible because there is very little metal-to-metal contact in the sash. Provision has been made in this sash to prevent the transmission of vibration and weaving from the car to the sash, and to insure an adequate seal between the sash frame and car structure.

NEWS

N. H. Seen Victor In Truck Tussle

Prof. Breed believes road will
regain \$9,000,000 revenue
lost to highways

Hearings in the New York, New Haven & Hartford reorganization case were closed on June 17, and Interstate Commerce Commissioner Mahaffie called for briefs to be submitted not later than August 1. Testimony at the sessions subsequent to those reported in last week's issue was given by Fairman R. Dick, New York investment banker and analyst; Charles B. Breed, professor of railroad and highway transportation at the Massachusetts Institute of Technology and head of its department of civil engineering; and Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads, all of whom testified on behalf of the Pennsylvania in its capacity as a common stockholder in the New Haven.

Mr. Dick warned the commission of the threat to railroad credit and the future stability of the industry if stockholders are to be wiped out in reorganization proceedings. He went on to declare that if the railroads in the future are to improve their properties and service, the interests of the stockholders must be protected in reorganizations where there is a possibility of future earning power.

"I am of the opinion," Mr. Dick told the commission, "that the ability of our railroads to finance by stock in the future will be largely determined by the extent of protection that the government is able to furnish the railroad stockholder today. If the investment of a stockholder is represented by physical assets or investments it is of the utmost importance that the stockholder should not be excluded from all the recovery that may be possible when railroad earning power is restored to an adequate level."

Professor Breed gave the commission an optimistic view of the future earning power of the New Haven and of the industrial outlook for the three southern New England states which it serves. Comparing the high industrial development of southern New England with that of other sections of the country, and emphasizing its closeness to the nation's greatest consuming markets, Professor Breed pictured that area an increased movement of both freight and passenger traffic. "The New Haven," he said, "is in a particularly stra-

New Eastern Fares Effective June 30

The Trunk Line Association filed new passenger tariffs on June 22, basing round-trip fares on a sliding scale of from 2.25 to 1.7 cents per mile in coaches, from 3 to 2.7 cents per mile in Pullmans and railroad transportation tickets valid in Pullman upper berths at 2.7 cents per mile, to be effective June 30. The roads had already obtained I. C. C. permission to make these tariffs effective on five days' notice. (See *Railway Age* for June 3, page 956.)

tegic position to benefit by this movement. The New Haven has benefitted in the past; it will so benefit in future years when business in New England returns to a normal basis."

He also declared that the New Haven has been particularly affected by highway competition under conditions which he pronounced to be "unfair." He pointed out that the trucks have been taking the "cream" of the less-than-carload freight business in New England. He estimated, however, that traffic to the value of \$9,072,000 annually can be recovered by the New Haven.

Dr. Parmelee declared that in his opinion the present common stock of the New Haven "has a distinct value and that it should be accorded a corresponding participation in the reorganized company." He also urged the importance of giving due consideration to the outlook for the future earnings of the New Haven, which he characterized as "most promising" and said may make the present reorganization plan "seem unduly pessimistic."

Suspends Export Grain Rates

The Interstate Commerce Commission has suspended from June 20 until January 20, 1940, the operation of certain schedules wherein the railroads proposed to reduce the export rates on barley, corn, oats, rye and wheat, in carloads, from Chicago and Peoria, Ill., St. Louis, Mo., and related points, to North Atlantic ports.

Club Meeting

The Eastern Car Foreman's Association will hold its seventh annual golf tournament and field day July 13 at the Race Brook Country Club, New Haven, Conn. Reservations should be mailed to T. P. O'Brian, Room 1977, 50 Church Street, New York.

Judge Orders Cut In Rutland Wages

Directs receiver to reduce wages about 17 p. c.; dismisses suit on wage deduction

Ruling favorably on a petition of Receiver L. G. Murphy of the Rutland for a court direction to reduce wages, following a deadlock in National Mediation Board proceedings with respect to the receiver's wage cut notice of December 9, 1938, Judge Harland B. Howe of the U. S. district court for Vermont issued a decision on June 17 ordering the receiver, effective June 30, midnight, to reduce the wages of his employees by the following percentages of the rates paid them prior to July 12, 1938:

Weekly Earnings	Per Cent Reduction
\$15 to \$23	10
Over \$23 to \$29	15
Over \$29 to \$35	17.5
Over \$35 to \$58	20
Over \$58 to \$69	25
Over \$69	30

The reductions thus ordered on the sliding scale average 17 per cent of the total payroll. The same day the judge dismissed a suit brought in behalf of the employees to force the receiver to pay present wages in full and all sums withheld from employees under court directions of July 12 and July 30, 1938.

Judge Howe's order directing the wage reduction backed up Receiver Murphy's contention (reported in last week's *Railway Age*) that the employees violated the Railway Labor Act by refusing to mediate the question of a wage reduction until the receiver should perform the following conditions which they imposed: (1) that the court order of July 30 (directing the receiver to deduct a portion of wages on a sliding scale similar to the wage reduction outlined above) be vacated; (2) that the receiver start paying wages in full in cash; (3) that he promise to pay on March 15, or at a time to be agreed upon, the portion of wages withheld between July 1 and August 4; (4) that he pay \$29,000 in wages withheld by order of the court of July 12; (5) that he promise to pay \$200,000 (in installments) that he "owes" for wages withheld by order of the court of July 30; and (6) that he promise to pay the withheld wages by order of the court of July 30 out of net earnings before payment of interest on bonds.

The Judge noted that O. K. Hedges of the Brotherhood of Locomotive Engineers, (Continued on page 1101)

R. F. C. Att'y Fears Gov't Ownership

Cassius Clay foresees that it may come about because of pressure groups

Cassius M. Clay, assistant general counsel for the Reconstruction Finance Corporation, told members of a House judiciary subcommittee holding hearings on the railroad reorganization court measure on June 19 that at the present time 30 per cent of the nation's railroads are being operated by the federal government and that if something is not done to alleviate the carriers' plight, that percentage will be measureably increased in the near future. If this percentage increases, Mr. Clay added, it could easily be only a short step from government operation through the medium of the federal courts to outright government ownership. This would come about, said the R. F. C. counsel, if the various pressure groups who owned railroad securities decided that their securities were in jeopardy and decided that it would be preferable to have the government take over or guarantee their interests in the railroads.

Mr. Clay appeared in support of the recently-passed Senate bill, S.1869, which the House judiciary committee is now considering. He reiterated the views which he expressed before the Senate interstate commerce committee and told the committee that he also appeared for Jesse Jones chairman of the R. F. C. Mr. Clay saw no panacea for the railroad problem in the pending measure, but he did believe that its enactment would speed up railroad reorganizations.

Before launching upon a detailed discussion of the measure, Mr. Clay made some observations on the general railroad problem. He pointed out that during the last decade this country has witnessed such a large scale development of trunk highways that the result now is that we have a "tremendous overcapitalization in transportation," and he added that this was especially true of trunk highways.

Some of the committee members asked Mr. Clay what he thought of the Baltimore & Ohio's pending interest deferment plan. The R. F. C. counsel observed that all that the plan did was to defer the interest on the bonded debt for eight years and so far as he could see, during the next eight years, the road would still be in the position of being unable to borrow from anyone except the R. F. C. "And," he added, "the B. & O. already owes us \$90,000."

The subject of mergers and consolidations was the next subject discussed by the government attorney and he advised the committee to delete any mention of this subject from the bill because of the fact that in his opinion "attempting to merge roads in a reorganization case is an almost unmanageable problem." Rather, he felt that there must be reorganization first before one can attempt to consolidate properties.

Mr. Clay likes the pending bill because, as he said, it will give the new reorganiza-

tion court the power to pass on all legal questions rather than leaving many of them to the Interstate Commerce Commission as is now the case under section 77. The question of whether the principles of the Boyd case are controlling in section 77 cases was raised by Representative McLaughlin, Democrat of Nebraska. Mr. Clay is convinced that it is, but he would retain in the Senate bill the clause which makes it entirely clear that such is the case. He admitted that six years after the enactment of section 77 we have no court decision as to whether the Boyd case rule applies or whether section 77 is a composition statute which will permit the debtor to arrange a composition with his creditors and remain in possession of the property. Representative Michener, Republican of Michigan, wanted to know whether this was the fault of the courts or of the law. Mr. Clay thought it was the fault of the law.

The R. F. C. railroad attorney also took sharp issue with some testimony of Luther M. Walter, co-trustee of the Chicago Great Western, who testified before the committee last week. At that time Mr. Walter told the committee that there was no need to change the present law because of the fact that the commission has virtually completed all of its work in the pending reorganization cases. He submitted charts to show the progress that the commission has made. Mr. Clay asserted that Mr. Walter either did not know what he was talking about or was misinformed because such is not the case. Rather, he said, the commission's work is not nearly done, but in some cases it is just beginning.

Discussing the 12-year standard of earnings as the yardstick for future capitalizations, Mr. Clay said that he would prefer to leave the matter of capitalizations entirely to the judgment of the commission as is now the case. "After all," he said, "you have to trust someone and you might as well trust the commission to set up a proper capitalization." He closed his testimony by urging the committee to adopt the bill, adding that it was "a conservative measure" and retained all of the safeguards for investors that are incorporated in the present section 77.

Frank L. Mulholland, counsel for the Railway Labor Executives Association and the committee-of-six, was the only witness at the short session held on June 16. He favored the bill as passed by the Senate, stressing the reorganization court feature of the bill. He told the committee that enactment of the measure would expedite carrier reorganizations under section 77 and added that the bill had the endorsement of the railway labor organizations.

Judge Charles M. Hay, also appearing for the Railway Labor Executives Association, asked the committee to include certain minor amendments desired by the Brotherhoods but withdrew his request when he was informed that the amendments were already included in the bill.

The next witness at the committee hearing was Commissioner Joseph B. Eastman who occupied the stand during the morning session on June 21. Mr. Eastman ap-

(Continued on page 1101)

House Bloc Fights Water Regulation

Group opposed to legislation placing control with the I. C. C.

A new obstacle in the way of general transportation legislation at this session of Congress came to the fore on June 20 when a bi-partisan group in the House of Representatives announced the formation of a steering committee to organize and direct a fight against any legislation carrying provisions for regulation of water carriers by the Interstate Commerce Commission. On the same day Chairman Lea of the House committee on interstate and foreign commerce took the floor to warn his colleagues that transportation "is a subject that readily lends itself to the demagogic;" and to express the belief of his committee that Congress "will have judgment enough, prudence enough, and patience enough to ignore speeches, communications and propaganda presented for the purpose of confusing or misleading or prejudicing you before you act upon this important problem." Also, Mr. Lea told Representative Lewis, Democrat of Colorado, that the sub-committee which has the transport bills in hand "is working daily" and hopes to be able to report a bill to the House next week.

The representatives opposing I. C. C. regulation of water carriers have joined in what one of them called a "formidable bloc," and their campaign was launched on Tuesday when Representative Warren, Democrat of North Carolina, inserted in the Congressional Record a statement prepared by the group's steering committee and a letter which Secretary of War Woodring wrote to Representative Lea opposing I. C. C. regulation of water carriers, the imposition of tolls on waterways and relief for railroads in connection with the cost of reconstructing bridges altered as a result of waterway improvements. Members of the bloc's steering committee, in addition to Mr. Warren, are: Representatives Mansfield of Texas, Bland of Virginia, Disney of Oklahoma, Kleberg of Texas, Harrington of Iowa, Whittington of Mississippi (Democrats), Culkin of New York, Oliver of Maine, and Pittenger of Minnesota (Republicans). One of the foregoing—Representative Bland—on June 21 introduced a resolution to set up a House Committee of nine members to investigate transportation problems in the United States.

At the opening of the House's June 20 session Representative Warren got unanimous consent to speak for one minute, and proceeded to assail the pending transport bills as measures "inimical to labor, to shippers, to consumers and to the American people as a whole" in that they would "immediately mean higher freight rates . . . when all our efforts should be made to reduce them." The gentleman from North Carolina then obtained unanimous consent to have the steering committee's

(Continued on page 1102)

C. N. J. Files Plan to Cut Interest

Would pay 75 per cent of interest as fixed charge, balance dependent on earnings

The Central of New Jersey has filed with the Interstate Commerce Commission a plan of interest deferment and readjustment of its capital structure. Accompanying the plan was a request for authority from the commission to issue certain certificates of deposit in respect of not more than \$49,998,000 of its existing general mortgage bonds, and to issue not to exceed \$49,998,000 of general mortgage bonds by modifying rights and obligations presently represented by a similar amount of existing general mortgage bonds.

Under the plan as presented to the commission the obligation of the company in respect of interest on its \$49,998,000 of general mortgage four and five per cent bonds will, effective as of January 1, 1939, and extending until January 1, 1944, be modified so that 25 per cent of the interest on each bond will continue to be fixed charge while 75 per cent of the interest on each bond will be contingently payable and accumulative.

In an introductory statement to the proposed plan, the carrier stated that in each of the past seven years, 1932, to 1938, inclusive, it has failed to earn its fixed charges by substantial margins. It failed to earn fixed charges by \$1,828,082 in 1932, by \$2,309,738 in 1933, by \$1,536,070 in 1934, by \$2,346,737 in 1935, by \$2,983,240 in 1936, by \$2,082,386 in 1937, and by \$4,264,825 in 1938. The accumulated net income deficit for the seven year period aggregates \$17,351,081.

The principal fixed charges of the company are the interest obligation, aggregating for the year 1938, \$2,391,200, upon its general mortgage 100-year gold bonds, dated July 1, 1887, and due July 1, 1987, of which \$50,000,000 are authorized and \$48,824,000 are now outstanding, consisting of \$43,824,000 bearing interest at five per cent and \$5,000,000 bearing interest at four per cent, and the rental paid by the company for the lines of railroad in Pennsylvania owned by the Lehigh Coal & Navigation Co., or its subsidiary, the Wilkes-Barre & Scranton and leased by the company, which rentals aggregate \$2,334,407 per year plus certain amounts in respect of taxes, which vary from year to year and which are relatively minor in amount. The aggregate rentals for these properties in 1938 amounted to \$2,350,604. Other miscellaneous fixed charges in 1938 amounted to \$112,462.

The proposed plan of readjustment provides that the fixed interest on the coupon bonds will continue to be payable semi-annually on the present interest dates, January 1 and July 1 of each year. The fixed interest on the registered bonds will also be payable semi-annually, on January 1 and July 1 of each year instead of quarterly as at present. The contingent interest will be payable on May 1 of each year subsequent to the year 1939 until the whole

thereof has been paid out of but only to the extent of available net income earned in the preceding calendar year.

Any available net income of the company for each year of the adjustment period will be applied first, to the pro-rata payment of the contingent interest, if any, which shall have accumulated in respect of years prior to that in which such available net income was earned, in the order of priority in time of the accrual thereof, and, second, to the pro-rata payment of contingent interest which shall have accrued in respect of the year in which such available net income was earned.

It is provided that the plan will not become effective until 90 per cent of the bondholders have given their assents.

El Capitan Enlarged for Summer Business

An additional 1,800-hp. Diesel unit, a dining car and three coaches has been added to the consist of the El Capitan, which the Atchison, Topeka & Santa Fe operates between Chicago and Los Angeles, as a result of heavy demand for space on the train. This additional equipment will be operated during the summer season.

Motor Carrier Purchases by Frisco Affiliate

The Frisco Transportation Company, a motor carrier affiliate of the St. Louis-San Francisco, has asked the Interstate Commerce Commission for authority to purchase the operating rights of Mrs. B. T. Blake, doing business as the Blake Truck Line, Truman, Ark. This company has also asked authority to purchase the operating rights of C. F. Reddish, doing business as the Reddish Truck Service, West Plains, Mo.

Bills in Congress

The Senate last week passed H.R.5474, thus completing legislative action on this measure carrying amendments to the Railroad Unemployment Insurance Act along lines recommended by the Railroad Retirement Board to facilitate administration. The President signed the bill on June 21.

Sub-committees of the Senate committee on interstate commerce and House committee on interstate and foreign commerce have held hearings, respectively, on S.2444 and H.R.6371, identical bills designed to prohibit "certain discriminatory practices with respect to the granting of transit privileges." It is not expected that these measures, which would have Congress go in for a bit of legislative rate-making, will get out of committee.

Senator Lundeen, Farmer-Laborite of Minnesota, has introduced in the Senate S.2656, a bill to increase railroad employment to 1,000,000 and to freeze it at that figure.

Senator Wheeler, Democrat of Montana, has introduced for himself and Senator Truman, Democrat of Missouri, S.2610, a bill which makes slight modifications in their original bill, S.1310, which would give the Interstate Commerce Commission control over so-called "outside investments" of railroads. Hearings on the bill are scheduled for June 26 before the Senate interstate commerce committee.

N. & W. Gets Gold Harriman Medal

Iron Range wins silver award and Ishpeming line gets the bronze trophy

The Norfolk & Western received the gold medal E. H. Harriman award for the best 1938 safety performance among the larger railroads, the nineteenth presentation being made at a luncheon at the Yale Club, New York, on June 20. The silver medal for the best showing among roads operating between one and ten million locomotive-miles was bestowed upon the Duluth, Missabe & Iron Range, while the bronze medal (roads with less than one million locomotive-miles) went to the Lake Superior & Ishpeming.

The awards were received by President W. J. Jenks for the N. & W., by President Charles E. Carlson for the D. M. & I. R. and by Assistant General Manager A. Syverson for the L. S. & I.

The awards are made each year by the American Museum of Safety, on behalf of W. A. and E. R. Harriman, sons of the late E. H. Harriman. The award was founded in 1913 by the late Mrs. Mary W. Harriman in memory of her husband.

Col. John Stilwell, president of the American Museum of Safety, presided at the luncheon. The presentation of the medals was conducted by George B. Cortelyou, chairman of the committee of award. Other members of the committee are F. D. Underwood, Charles M. Schwab, Samuel O. Dunn, editor of *Railway Age*, Frank McManamy, former Interstate Commerce Commissioner, and Lew R. Palmer (secretary) Conservation Engineer of the Equitable Life Assurance Society.

As stipulated in the plan of award, the awards were determined on the basis of the official records and summaries of the Interstate Commerce Commission for the year 1938, the Class I railroads being ranked in their several groups according to their individual safety ratings as shown by these records.

In his opening remarks, Col. Stilwell pointed out the fact (reported in the *Railway Age* of April 29, page 747) that in 1938 the railroads of America reported to the Interstate Commerce Commission the best safety record in their history. He drew attention to the accomplishment of most of this brilliant record in the past 25 years and acclaimed the part that the Harriman family had played in the achievement of this accomplishment. Finally, he assigned "the lion's share of the credit for the safety achievements of 1938" to "that typical American—the railroad man."

The citations were read by Mr. Palmer. In that of the Norfolk & Western it was pointed out that the road had reduced passenger casualties (in proportion to passenger-miles) 86 per cent since 1923-25 and employee casualties (in proportion to employee-hours) 84 per cent. The Duluth, Missabe & Iron Range did not report a single casualty to passengers, trespassers or at grade crossings in 1938 and only two minor employee injuries were sustained on

this road during the year. The Lake Superior & Ishpeming has operated for seven consecutive years without an employee fatality—and neither this road nor the D. M. & I. R. has ever killed a passenger.

Mr. Cortelyou in his remarks paid high tribute to the memory of both E. H. Harriman and his wife, to Arthur Williams, late president of the Safety Museum, to Dr. J. H. Parmelee of the Bureau of Railway Economics (for his assistance in analyzing the carriers' safety performance to determine the winners of the awards) and to the Harriman sons—W. A. and J. R. (who were present at the luncheon).

Among other distinguished guests at the function was the venerable Dr. John H. Finley, editor emeritus of the New York Times (and years ago president of Knox College, Galesburg, Ill.), who said he was there to "write a piece for the paper" about railroad safety in general and this award in particular. Sure enough, in the Times the next morning there was the editorial—a tribute to the railroads and to the memory of Mrs. Harriman.

Responsibility Fixed in Black Tom Case

The German Government was found guilty of sabotage, and of fraud and collusion in the presentation of its defense against charges of responsibility for the Black Tom and Kingsland disasters in 1916 and 1917 which destroyed the Lehigh Valley's terminal and a plant of the Canadian Car & Foundry Co., in a final decision handed down by Associate Justice Owen T. Roberts, umpire of the German-American Mixed Claims Commission, on June 15.

I. C. To Reduce Export Grain Rates

The Illinois Central, on June 14, decided to proceed with independent publication of reduced rates on export grain from Chicago and northern and central Illinois origin to New Orleans and Gulf ports. On wheat, rye, oats, corn and barley, with minimum weights as at present specified in the tariffs, the Chicago-gulf reshipping rate will be reduced from 16 cents to 12 cents per 100 lb., and the local rate will be cut from 24½ cents to 20½ cents per 100 lb. From northern and central Illinois origins (except Chicago) the rate will be reduced from 24 cents to 18 cents per 100 lb.

Associated Traffic Clubs to Meet at San Francisco

The Associated Traffic Clubs of America will hold its semi-annual convention at the Palace Hotel, San Francisco, Cal., on June 27 and 28. The program provides for addresses, during the morning of the first day, by Wallace L. Ware, attorney and former president of the California State Railroad Commission; and Jack Frye, president of Transcontinental and Western Air, Inc. A luncheon for club publication editors will be held at noon. At the afternoon session of the first day reports by committees will be followed by addresses by Joseph B. Sheehan, president of the American President Lines, and J. T. Saunders, vice-president of the Southern Pacific. In the evening, following a reception

by the Transportation Club of San Francisco, there will be a dinner and dance. The speaker for the dinner has not been announced.

At the morning session of the second day, delegates will report as to individual traffic club activities, awards will be made to individuals for outstanding service in traffic club educational work and prizes will be awarded for editorial contributions in the contest on the subject, "Why Should a Traffic Club Belong to and Co-operate with the Associated Traffic Clubs of America?" At the afternoon session, a special committee will report on the proposed establishment of a national institute of traffic management.

Low Cost Meals on L. & N.

The Louisville & Nashville is supplementing its regular dining car service with special service for coach passengers. Low-cost plate meals are now served in the dining cars at certain designated times and at substantially lower prices than similar meals served during regular hours. A 50-cent breakfast is served before 7 a. m. and after 9 a. m., a 60-cent lunch before 11:30 a. m. and after 2 p. m., and a 60-cent dinner before 5 p. m. and after 8 p. m. In addition to these low cost meals, sandwiches, pie, milk and coffee are also sold through the coaches by waiters after regular meal periods.

T. & P. Gets Truck Certificate

The Interstate Commerce Commission, Division 5, has conditionally granted a common-carrier trucking certificate to the Texas & Pacific Motor Transport Company, affiliate of the Texas & Pacific, for operations over a specified route between Wills Point, Tex., and Gladewater. The report notes that no one opposed the application, although a letter of protest was received after the hearing from the Railway Labor Executives' Association.

The five conditions on which the certificate was granted, the decision points out, are similar to those imposed in a recent decision in another T. & P. case which was reviewed in the *Railway Age* of December 17, 1938, page 890; and in a Kansas City Southern Transport Company case noted in the issue of December 3, 1938, page 824.

I. C. C. Again Refuses to Take Hours-of-Service Jurisdiction

Reaffirming its recent decision in Ex Parte No. MC-28, the Interstate Commerce Commission has denied "for lack of power" the petition of American Trucking Associations, Inc., Brooks Transfer and Storage Company, Brooks Transportation Company, Baltimore Transfer Company of Baltimore City and Horton Motor Lines, Inc., asking that the commission prescribe qualifications and maximum hours of service for motor carrier employees whose activities do not affect safety of operation. The full commission acted on the petition, and the dissent of Commissioners Lee and Rogers, members of the Motor Carrier Division, is noted. Commissioner Aitchison did not participate in the disposition of the proceeding.

As noted in the *Railway Age* of June

3, the above-mentioned petitioners have brought suit in the United States District Court for the District of Columbia to compel the commission to take jurisdiction over the hours of service of all motor carrier employees.

City of Denver Completes Three Years Service

Three years service, or 1,095 trips for a total of 1,147,029 miles were completed by each of the City of Denver streamliners of the Union Pacific and Chicago & North Western on June 18. During this period the trains have never been in the shop, maintenance work having been accomplished at the end of each trip. At the same time, Miss Gertrude Jones, registered nurse-stewardess who has been on duty with the City of Denver since its inauguration, completed three years service, with more than 800,000 miles duty travel to her credit.

Santa Fe Affiliate Gets Rights Under "Grandfather" Clause

The Interstate Commerce Commission, Division 5, has granted certificates under the Motor Carrier Act's "grandfather clause" authorizing the Santa Fe Trail Transportation Company, affiliate of the Atchison, Topeka & Santa Fe to continue common-carrier trucking operations over specified routes between points in Arkansas, Kansas, Missouri, Nebraska and Oklahoma. The same decision also finds the Transportation Company, as successor in interest to A. N. Weaver, entitled to "grandfather-clause" rights on a route between Salina, Kans., and Concordia; while it awards another "grandfather-clause" certificate to C. L. Hancock as successor in interest to the Transportation Company and Weaver on a route between Concordia and St. Joseph, Mo.

Approves Water-Competitive Oil Rates in Lower Mississippi Area

The Interstate Commerce Commission has found justified proposed reduced car-load rates on gasoline, kerosene and naptha, from points in the New Orleans-Baton Rouge group in Louisiana to Vicksburg and certain other destinations in Mississippi. The decision in I. & S. Docket No. 4578, embracing also Fourth Section Application No. 17491, grants the necessary fourth-section relief and modifies previous commission findings to the extent necessary to make the proposed rates effective.

The report points out that the competition with water routes and water-and-rail routes to and via Vicksburg was the occasion for the railroad rate cut. The dissent of Commissioner Alldredge was noted, while Commissioner Aitchison did not participate in the disposition of the proceeding.

New Equipment Installed

Class I railroads in the first five months of 1939 put in service 7,111 new freight cars as compared with 5,786 installed in the same period last year, according to the Association of American Railroads. New steam locomotives put in service in the first five months of 1939 totaled twelve

compared with 105 in the same period of 1938; new Electric and Diesel-electric locomotives 84, compared with 55.

Class I roads on June 1 had 9,261 new freight cars on order compared with 6,391 on May 1, and 4,484 on the same day last year. New steam locomotives on order on June 1, totaled 63, compared with 61 on May 1, and 56 on June 1 last year; new electric and Diesel-electric locomotives on order on June 1 number 65 compared with 23 on May 1 and six on June 1, 1938.

Freight cars and locomotives leased or otherwise acquired are not included in the above figures.

Second 6,000-Mile "Railfan Tour" Announced

The long distance, all-expense fan tour is evidently becoming an institution. Companionship the "Golden Gate Railfan Tour" announced in the *Railway Age* of May 27, the Chicago, Milwaukee, St. Paul & Pacific is to operate its second annual 6,000-mile "railfan tour" out of Chicago, on July 16 to 30, inclusive. The tour will touch St. Paul, Minn., Seattle, Wash., Portland, Ore., San Francisco, Cal., Los Angeles, Salt Lake City, Utah, and Colorado Springs, Col. Participating carriers will be the Milwaukee, Northern Pacific, Southern Pacific, Union Pacific, Denver & Rio Grande Western and Chicago, Burlington & Quincy. The tour will include a ride on the three-ft.-gauge line of the D. & R. G. W. through Marshall Pass. Rates covering all expenses run from \$145 for coach accommodations to \$220 for lower-berth Pullman accommodations.

May Operating Revenues 9.9 Per Cent Above May, 1938

Preliminary reports from 91 Class I railroads, representing 82 per cent of total operating revenues, made public June 15 by the Association of American Railroads, show that these roads, in May, had estimated operating revenues amounting to \$245,794,206 compared with \$223,607,409 in the same month of 1938 and \$378,790,612 in the same month of 1930. The May gross was 9.9 per cent above that for May, 1938, but 35.1 per cent below May, 1930.

Freight revenues of the Class I roads in May amounted to \$196,779,948 compared with \$177,516,068 in May, 1938, and \$291,775,484 in May, 1930—10.9 per cent above the former but 32.6 per cent below the same month in 1930. Passenger revenues totaled \$26,833,156 compared with \$25,946,792 in May, 1938, and \$50,959,486 in May, 1930—3.4 per cent above the former, but 47.3 per cent below the same month in 1930.

Senate Gets Record Rivers and Harbors Bill

Rivers and harbors and flood control projects estimated to cost \$407,855,600 would be authorized by the rivers and harbors bill (H.R.6264) as reported favorably in the Senate this week by the committee on commerce. If passed by Congress this would be the biggest rivers and harbors bill on record; as noted in the *Railway Age* of May 27, page 918, the measure as passed by the House authorized projects

with an estimated total cost of \$83,000,000.

The latter figure grew to the above-mentioned \$407,855,600 in the sub-committee of the Senate commerce committee which later accepted the sub-committee's recommendations. Among the 40 projects added to the bill since it left the House are the Tombigbee-Tennessee waterway and the Umatilla dam on the Columbia river which were knocked out in the lower chamber. The bill carries no appropriations for the projects it authorizes; funds for the work are carried in the War Department Civil functions appropriation bill and allotments are made by the Chief of Engineers.

In the latter connection the House this week adopted the conference report on this War Department civil functions appropriation bill (H.R.6260) for the fiscal year ended June 30, 1940, thus completing legislative action on that measure which carries rivers and harbors appropriations in the amount of \$96,000,000.

P. & S. Division Elect Officers

At the close of the annual meeting of the Purchases and Stores Division—A. A. R., last week in Chicago, A. C. Mann, vice-president of the Illinois Central, was elected chairman, and L. P. Krampf, supply agent, Mo. Pac., was elected vice-chairman. A. L. Sorensen, manager of stores, Erie, will continue on the general committee for two years pursuant to his retirement as chairman. C. C. Warne, purchasing agent, N. Y. C.; C. E. Smith, vice-president, N. Y., N. H. & H.; and O. A. Donagan, general storekeeper, B. & M., were re-elected to the General committee, while W. W. Kelly, general purchasing agent, A. T. & S. F.; C. L. Wakeman, general storekeeper, Wab.; and W. R. Culver, superintendent of stores, C. & O., were newly elected to the General committee to fill vacancies created by the retirement of E. G. Walker, assistant general purchasing agent, A. T. & S. F.; J. L. Bennett, purchasing agent, C. of G., and C. B. Tobey, general storekeeper, L. V.

Trucker Attacks Constitutionality of Texas Load Limit

An attack on the constitutionality of the Texas 7,000-lb. load-weight limit of trucks is contained in a petition filed in the United States district court at Dallas, Tex., by O. S. Hurley, an operator of interstate truck lines. As a result, the court issued a temporary restraining order prohibiting the state highway department, the department of public safety, all deputies, constables, sheriffs and license and weights inspectors of Texas from interfering with the plaintiff's trucks or drivers and from reducing the cargoes to 7,000 lb. A hearing will be held to determine if the order shall continue effective until the trial of the case on its merits.

The plaintiff charges that the 7,000-lb. load law is in violation of the Fourteenth amendment which prevents the taking of property without due process of law, and also violates the commerce clause of the constitution, which provides that no unfair burden shall be placed on interstate commerce. He also claims that the trucks and trailers of the plaintiff are built so that net loads of 30,000-lb. can be hauled on the

highway without injury to the roads. He declares that his trucks and drivers have been subjected to a series of arrests and interferences from state officers and that since September, 1938, he has been forced to pay sixty fines. Trucks have been stopped and forced to unload produce from the refrigerated trucks without proper storage and warehouse facilities at a great loss to the plaintiff, his petition alleges.

A. H. Renshaw, Chairman General Railway Signal Company, Dies

Alfred Howard Renshaw, chairman of the board of the General Railway Signal Company, New York, died on June 16, at his home in Noroton, Conn. Mr. Renshaw was born on November 24, 1861, on Staten Island, N. Y. After attending schools in this country and abroad, he



New York Times Studio

Alfred Howard Renshaw

went to the Virginia Military Institute and in 1883, was graduated from Rensselaer Polytechnic Institute, Troy, N. Y., with the degree of civil engineer. From 1884 until 1887, he was assistant engineer of the New York Aqueduct Commission and then served for two years at the United States Navy Yard, Charleston, Mass. Mr. Renshaw was a member of the firm of Burden, Renshaw & Co., Troy, N. Y., from 1889 to 1892 when he became treasurer of the Trojan Car Coupler Company; in 1893 he was elected president serving in the latter connection until 1906. Mr. Renshaw was also president of the Standard Signal Company from 1896 until 1903. He became president of the Federal Signal Company in 1908, which position he retained until 1923, when that company was merged by the General Railway Signal Company. From the time of the merger until his election in 1936 as chairman of the board, he was vice-president and senior vice-president of the General Railway Signal Company. Mr. Renshaw also served as president of the General Railway Signal Products Company from 1924 to 1928. He was the inventor of the Trojan car coupler and many railway safety devices. For many years, Mr. Ren-

shaw was a trustee of the Rensselaer Polytechnic Institute, and a member of various engineering societies.

Plan Extension of Pick-Up and Delivery to Maritime Provinces

Pick-up and delivery service for less-carload freight will be extended to the Canadian Maritime provinces (New Brunswick, Nova Scotia and Prince Edward Island), according to a decision reached in a recent conference held in Montreal, Que., between representatives of the Canadian National, Canadian Pacific, the Dominion Atlantic (C. P. R. affiliate) and the Transportation Commission of the Maritime Board of Trade. Railways serving the provinces have for some time given consideration to the inauguration of pick-up and delivery service within the territory described in the Maritime Freight Rates Act and it was agreed that the extended service within the maritimes would be offered to shippers and consignees under the provisions of the new Canadian Transport Act. Particulars of the arrangement are to be submitted to interested shippers and consignees through the Transportation Commission as soon as full details of the plan are worked out.

West Shore Trainman Crosses Burning Trestle to Warn Trains

A romantic act of heroism was performed recently by Wesley Carty, a trainman on the West Shore (River division of the New York Central). On June 6 Carty was riding the rear platform of No. 8 southbound from Albany, N. Y., to Weehawken, N. J., just after passing over a trestle across an inlet of the Hudson river near Cedarcliff, N. Y., when he noticed smoke arising from the trestle timbers. Halting the train he ran back to the spot. A gust of wind suddenly whipped the fire into flames inflicting painful burns on his legs and face. Nevertheless he proceeded across the burning structure and made his way north three-quarters of a mile to Marlborough station where he warned the operator of the danger. Information was relayed to Milton, four miles further north in time to halt a southbound freight train.

Mr. Carty, who collapsed after giving warning, was taken to a Newburg hospital for treatment of second-degree burns.

F. E. C. Gives Educational Train Rides

The Florida East Coast has operated four special school children's "train rides" out of Miami, Fla., during the past few months, involving a total of 215 children and 26 adults. In each case the groups were afforded special quarters on regular trains for a 20-mile trip from Miami to Hollywood. Parents and teachers lent their aid by driving from Miami to Hollywood to bring the children back as there was no convenient return train connection.

Before leaving Miami the children were given a complete inspection tour of the train, a Pullman representative explaining the features of the equipment to them. Boys in particular were greatly interested in looking over the locomotive and shak-

ing hands with the engineer. Cups of ice cream were served to children in the dining car. Special coach fares applicable to party travel were collected.

Both before and after the trips, studies in transportation were carried on in the school room. Company officers upon inquiry, found that most of the students had never before ridden upon a train.

Freight Car Loading

Loading of revenue freight for the week ended June 17 totaled 637,873 cars, the Association of American Railroads announced on June 22. This was an increase of 3,276 cars, or five-tenths of one per cent, above the preceding week, an increase of 82,354 cars, or 14.8 per cent, above the corresponding week in 1938, but a decrease of 114,914 cars, or 15.3 per cent, below the same week in 1937.

As reported in last week's issue, the loadings for the previous week ended June 10, totaled 634,597 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For Week Ended Saturday, June 10, 1939			
Districts	1939	1938	1937
Eastern	134,250	116,758	157,320
Allegheny	121,365	100,566	161,119
Pocahontas	46,117	34,179	45,744
Southern	92,427	84,265	101,392
Northwestern	99,079	78,134	125,747
Central Western	99,192	94,851	107,733
Southwestern	42,167	45,101	51,445
 Total Western Districts	240,438	218,086	284,925
Total All Roads.	634,597	553,854	750,500
 Commodities			
Grain and Grain Products	34,283	30,184	27,160
Live Stock	9,760	11,502	10,557
Coal	100,015	82,279	112,105
Coke	5,384	3,931	9,968
Forest Products	29,930	26,036	39,305
Ore	43,504	24,921	72,930
Merchandise l.c.l.	153,082	147,995	169,724
Miscellaneous	258,639	227,006	308,751
June 10	634,597	553,854	750,500
June 3	567,732	502,617	688,987
May 27	627,674	562,076	790,503
May 20	615,966	545,789	775,074
May 13	555,396	541,808	769,560
 Cumulative Total, 23 Weeks	13,396,734	12,527,445	16,715,097

In Canada.—Carloadings for the week ended June 10 were 42,497, as compared with 43,935 in the previous week and 41,489 last year, according to the compilation of the Dominion Bureau of Statistics.

Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:	
June 10, 1939	42,497
June 3, 1939	43,935
May 27, 1939	41,572
June 11, 1938	41,489
 Cumulative Totals for Canada:	
June 10, 1939	980,410
June 11, 1938	1,014,464
June 12, 1937	1,090,164
	648,355

Barker-Case Rule Bars Santa Fe Purchase of Bus Route

Adopting the proposed report of Examiner Philip N. Crowley, the Interstate Commerce Commission, Division 5, has denied the application of the Santa Fe Trail Transportation Company, affiliate of the Atchison, Topeka & Santa Fe, for authority to acquire the Lee Way Stages' 225-mile bus route between Raton, Tex., and

Amarillo. The adverse finding, as noted in the *Railway Age* of September 3, 1938, where the examiner's proposed report was reviewed, is based on the Barker-case definition of non-approved acquisitions by railroads as "those which compete with an established carrier, or which invade to a substantial degree a territory already served by another rail carrier."

Before picking up the examiner's report and making it the commission decision, Division 5's report reaffirms the Barker-case doctrine by noting disagreement with the following argument made by the applicant in support of its exceptions to the examiner's recommendations:

Protection of the traffic rights of competing common carriers at points not previously served by the rail carrier controlling the applicant is not a test imposed by the provisions of section 213 of the Motor Carrier Act, and presents a well-nigh insuperable obstacle to the conduct of bus operations by a rail-controlled subsidiary in territory where a considerable number of points served are not also located upon the railroad. No rigid test of this kind was contemplated in the statute which merely requires a showing that the rail-controlled bus operation may be used to advantage in connection with railroad operations.

Engineers to Consider Railroad Problems at Stevens Conclave

Railroad problems will be discussed by a representative of the industry, a regulator and a *Railway Age* editor at a nine-day economic conference for engineers to be held at the Stevens Engineering Camp, Johnsonburg, N. J., June 24 to July 3, inclusive. Called by the Stevens Institute of Technology, Hoboken, N. J., the Management division of the American Society of Mechanical Engineers and the New York section of the American Institute of Mining & Metallurgical Engineers, the conference will comprise 64 sessions and will be attended by more than 100 engineers, industrial executives, personnel officers, and members of the faculties of engineering colleges.

Of particular interest to railroaders is the presentation of a program for railroad recovery by Judge R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, at an evening session on June 27. The following morning J. G. Lyne, assistant to editor of *Railway Age*, will speak on "Labor Relations—The Railroads' No. 1 Problem." On the evening of June 28 Commissioner Carroll Miller of the Interstate Commerce Commission will speak on "Government and the Business of Transportation." While his subject concerns the federal labor policy in general, the address of Otto S. Beyer, member of the National Mediation Board, to be presented on the afternoon of June 25 will probably contain much railroad material.

Chilled Car Wheel Association's Work Commended

The American Trade Association Executives have sponsored this year their seventh annual competition for outstanding trade association activities. Over 20 associations competed, submitting individual manuscripts and supporting documents covering both general activities and special achievements. The only association to receive recognition for work of specific interest and value in the steam railroad field was the

Association of Manufacturers of Chilled Car Wheels, which received one of eight Honorable Mention prizes.

The prizes were presented on behalf of the American Trade Association Executives, by Edward J. Noble, executive assistant to the United States secretary of commerce, at a meeting in Washington, D. C., last month, and, in the absence of President Frank Hardin of the Association of Manufacturers of Chilled Car Wheels, Past President D. H. Sherwood, vice-president, Maryland Car Wheel Company, Baltimore, Md., accepted the award.

The citation read as follows: "The Association of Manufacturers of Chilled Car Wheels—for its achievement in obtaining complete co-operation of its industry in a program of quality standardization. This was brought about through an effective industrial research program, followed by arrangements for a field staff of technical inspectors which periodically visits all railroad car-wheel factories, the receipt of daily reports on processes and specifications and special training for employees. The quality of product has been improved. Production expenses have lessened. Greater appreciation of mutual engineering and selling problems has been a natural and desirable result."

March Accident Statistics

The Interstate Commerce Commission's completed statistics of steam railway accidents for March, 1939, now in preparation for the printer, will show:

Item	Month of March		3 months ended with March	
	1939	1938	1939	1938
Number of train accidents	500	468	1,482	1,492
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	168	181	399	440
Injured	178	171	445	439
Passengers on trains:				
(a) In train accidents*				
Killed	17	7	76	115
Injured	136	156	394	473
Travelers not on trains:				
Killed	1	1	2	1
Injured	61	65	210	211
Employees on duty:				
Killed	41	52	122	131
Injured	1,324	1,328	4,022	4,007
All other nontravelers: [†]				
Killed	109	108	376	368
Injured	396	407	1,453	1,513
Total—All classes of persons:				
Killed	319	345	900	950
Injured	2,112	2,134	6,600	6,758

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than \$150 to railway property.

† Casualties to "Other nontravelers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties for all classes of persons, including both trespassers and nontravelers, were as follows:

Number of accidents.	262	261	922	933
Persons:				
Killed	99	105	355	362
Injured	277	275	1,079	1,145

A. A. R. High-Speed Truck Tests

The Board of Directors of the Association of American Railroads recently authorized the expenditure of \$45,000 for the

purpose of making road tests of various types of trucks in modern high-speed freight service, and the initial tests were begun June 16 on the Pennsylvania, between Altoona and Lock Haven, Pa. The test train consists of a Pennsylvania E-6 Atlantic-type steam locomotive with 80-in. driving wheels, and five cars, including two baggage cars and one coach, Nos. 1, 3 and 5, and two test cars, Nos. 2 and 4 in the train. The test cars have been leased, together with their instruments, from the Gould Coupler Corporation, and additional test instruments are furnished by the A. A. R., and the Pennsylvania. The No. 3 baggage car serves as an office car for the accommodation of the test crew.

The objects of these tests, now being conducted by the A. A. R. Mechanical division, under the direction of W. I. Cantley, mechanical engineer, are to determine whether the conventional freight car truck has satisfactory riding qualities at speeds of 80 miles an hour, or more; also to determine the riding qualities and performance of various trucks designed specifically for the above high-speed service.

At a joint meeting of the various truck manufacturers on January 12, the program of tests was outlined and the following companies agreed to furnish trucks for test purposes, free of charge: Pennsylvania Railroad, Gould Coupler Corporation, National Malleable & Steel Castings, American Steel Foundries, Scullin Steel Company, Ohio Steel Foundry Company, Buckeye Steel Castings Company, the Bettendorf Company, Railway Truck Corporation, Standard Car Truck Company and Carry-Mussey Company.

A complete and extensive program of tests has been arranged, which will include road tests of each of these types of trucks under varying speed and load conditions, also with round and with eccentric-ground car wheels. The test procedure has been worked out in great detail so as to develop accurate comparative data on a strictly impartial basis, with minimum delay and cost in changing trucks, varying car loads, etc. It is anticipated that the tests will be completed late this Fall.

Chandler Bill Hits Snag

It appears at this time that the chances of the Senate and House reaching an agreement on the Chandler voluntary railroad reorganization measure at this session are growing slim. Members of the House judiciary committee have made it clear that the bill, which has passed both chambers in widely divergent forms, will be permitted to die unless the Senate recedes from its amendments which, in effect, would limit the measure to the Baltimore & Ohio and the Lehigh Valley.

Unless Representative Chandler, Democrat of Tennessee, can prevail upon Chairman Wheeler, Democrat of Montana, to withdraw his objections to the House version of the measure, it seems likely that the bill will be left to die in conference. Mr. Chandler expects to confer shortly with Senate leaders, but in view of the strong stand which Senator Wheeler has taken against permitting the bill to apply to any railroad which desires to avail itself of the benefits of the measure, it seems

highly unlikely that any compromise can be worked out. Chairman Wheeler has publicly stated that he saw no justification for a general application of the bill.

On the other hand, Representative Chandler and members of the House committee feel that the bill, as passed by the Senate, creates inequities, and they are doubtful as to the bill's constitutionality because they contend that it discriminates between railroad companies.

Would Have Senate Committee Probe Forwarder and L. C. L. Operations

Railroad methods of handling express, forwarder and l.c.l. freight traffic would be investigated by the Senate committee on interstate commerce or a sub-committee thereof if the Senate adopts a resolution (S.Res.146) introduced this week by Chairman Wheeler of that committee for himself and Senator Reed, Republican of Kansas.

The committee would report at the beginning of the next regular session of Congress on the investigation which would be with respect to "(1) the nature and legality of the methods now employed by common carriers by railroad subject to the Interstate Commerce Act for the handling of their express traffic, their forwarder or consolidated carload freight traffic, and their freight traffic in less-than-carload lots; and (2) the possibility of improving the methods of handling such classes of traffic in the interest of economy and of better service to the public."

Senator Reed is the author of the pending Senate Joint Resolution 117 which would direct the railroads to develop a plan for pooling l. c. l.; and was also responsible for inserting in S.2009 the provision (rejected in the Senate at Mr. Reed's suggestion) which would have authorized the Interstate Commerce Commission to require the railroads to set up a jointly-owned forwarding agency for the handling of l. c. l.

Petroleum Rates Cause Conflict in Northwest

A proposed reduction of the rail rates on petroleum products between coast terminals at Puget Sound and Portland, Ore., and Spokane, Wash., was the subject of conflict among railroads, truck lines and waterways at a hearing before the Interstate Commerce Commission at Portland, Ore., on June 15 to 17. The railroads had filed tariffs, reducing the rate from 41 cents to 25 cents per hundred pounds, but the tariffs were suspended by the Commission on petition of common carrier trucking concerns, which advocated a rail rate of 32 cents a hundred pounds. At the same time, the Inland Navigation Company's contract with oil companies to barge gasoline on the Columbia river from Portland to Umatilla at a rate of 7 cents a hundred pounds, played an important part. The Idaho Public Utilities Commission complicated the matter still more by contending that if the Commission should allow coast to coast inland empire rates now under suspension, the rail rate for petroleum products from Portland to Baker, Ore.,

would be but 28½ cents per hundred pounds, while that from Portland to Boise would remain at 61 cents. Railroads testifying in favor of the low rate contended that it was necessary for the rail carriers to compete with barges and private trucks operating to and from Attalia and Umatilla.

The Standard Oil Company of California, faced with competition from the Montana oil fields, bought 21 acres of land at Umatilla, built a 1,250,000-gal. gasoline storage plant and made arrangements with the Inland Navigation Company to barge its gasoline from Portland tanks to Umatilla for 7 cents a hundred pounds. This company is also using leased private trucks between Umatilla and Spokane at a rate of 17 cents a hundred pounds. According to W. O. Banks, assistant traffic manager of this company, most Standard products now move from Puget Sound under the 41-cent rate, but the movement will not be continued unless the rate is lowered. He said that the rails will have to reduce the rate to 24½ cents to compete with the water-truck route.

House Passes Tax Bill

The House, on June 19, passed the tax bill which will revise the corporate tax structure and extend the nuisance taxes for a period of two years. The measure provides, among other things, that corporations, including railroads, which are in an "unsound" financial condition, may be permitted to buy in their outstanding interest-bearing obligations at less than par without incurring a tax liability for the difference between par and the purchase price. This feature was advocated by Judge R. V. Fletcher, vice-president and general counsel for the Association of American Railroads, when he testified before the House ways and means committee last week.

At the same time the Senate subcommittee of the committee on finance has issued a comprehensive report on profit sharing in industry which also recommends that the Congress should enact the above-mentioned tax feature to help not only the railroads but all public service corporations. The subcommittee, headed by Senator Clyde L. Herring, Democrat of Iowa, recommends that Congress pass legislative measures which would—

1. Authorize the Reconstruction Finance Corporation either to buy for the account of any applying public service corporation all or any part of its fixed interest-bearing obligations outstanding in the hands of the public, if such obligations can be purchased at a reasonable net discount or to loan funds direct to such applicant for the purpose of purchasing all or any part of its outstanding fixed interest-bearing obligations at a reasonable discount; and

2. Exempt from income and capital gains tax and profit resulting to the public service corporations for the difference between original issue price and repurchase price, provided such bonds repurchased are retired from the capital structure and canceled.

"To protect the R. F. C. against loss," the committee comments, "Congress would have to empower the Interstate Commerce Commission and the Securities & Exchange Commission to approve applications of pub-

lic service corporations to issue and to pledge with the R. F. C. par value of refunding bonds equal in amount to the dollar value of the loan or loans made by the R. F. C. under the appropriate authorization."

"In such a manner the debt of our public service corporations, particularly the railroads and telegraph companies, could be substantially reduced, although perhaps not to as great an extent as might be desired. Whatever amounts were purchased would be eliminated from the fixed-debt schedules of the corporations, thus reducing overhead expenses to some extent. The reduction in interest charges over a five-year period would be substantial and would thus permit the increased expenditure of funds by the railroads for essential maintenance purposes."

Truman Takes Out After Waterway Crowd in Speech to Investors

Senator Harry S. Truman of Missouri charged that the gentlemen who flooded the country with propaganda opposing the Senate "omnibus" transportation bill (S. 2009) which he co-sponsored with Senator Burton K. Wheeler "are those who are profiting by government expenditures on waterways without one cent of expense to themselves," in a luncheon address before the New York state unit of the National Conference of Investors in New York on June 16. Developing this theme, the Senator found it ironical that the Pettingill bill to give the railroads a measure of freedom in rate-making was opposed by the water carriers, "the very fellows" who now oppose S. 2009, which would equalize regulation as among all the carriers.

During the question period following his address the speaker was asked why no consideration has been given in Congress to the "featherbed" rules enjoyed by railroad employees. He replied that "the time is not ripe to discuss that yet, but something will be done about it when the time comes." Senator Truman also admitted that he was personally opposed to the Chandler "voluntary adjustment" bill as a principle to be applied generally, but was not averse to it if restricted to the Baltimore & Ohio and the Lehigh Valley. He sponsored the Wheeler-Truman railroad reorganization bill, he said, because he believed the creation of a special court would "speed up" the reorganization process and relieve the district court judges of considering and passing upon complicated revamp plans while leaving under their jurisdiction the day-to-day work of issuing orders, etc., in co-operation with operating receivers or trustees. In this connection, he asserted that several judges had complained to him that the press of other federal proceedings left them insufficient time to properly consider railroad reorganization plans.

The Senator backed the Interstate Commerce Commission as a fair and impartial body. In his opinion, the fact that the motor carriers accused it of being "rail-minded" and the railroads consider it "truck-minded" is the best proof of that.

The meeting also considered a plan for legislation permitting R. F. C. loans to the railroads for the purchase of their own

bonds on the open market at prices below par, submitted by C. A. Graham, president, Bank of Le Roy, N. Y. The chairman of the state unit was authorized to appoint a committee to confer with national legislators and R. F. C. Chairman Jesse Jones on the practicability of such a law. Under the plan the R. F. C. would loan the purchase money at a low rate of interest which would be repaid plus interest and costs during a suggested period of 15 to 20 years. Important provisions are that any profits accruing to the carriers by reason of such purchases would be exempt from taxation; that no dividends are to be paid by the borrowing companies until the loans are repaid; and that, to forestall possible speculation in affected securities, the purchase of bonds shall be through tenders duly advertised, with no predetermined price specified, and bondholders making tenders will be required to prove ownership as of a specified date prior to the passing of the bill.

Roosevelt Suggests \$500,000,000 Rail Equipment Fund

President Roosevelt, on June 22, outlined a plan for the development over the next seven years of a \$3,060,000,000 revolving fund for self-liquidating loans, including \$500,000,000 for railway equipment to be acquired over a three-year period by a government agency from which the carriers could lease the equipment with an option to buy. The suggested disbursement for railway equipment during the fiscal year ended June 30, 1940, is set up at \$100,000,000, while the \$500,000,000 total to be reached after three years would constitute a revolving fund with repayments available for additional purchases.

The President's proposal, which would also set up a \$750,000,000 fund to be built up over a period of four years for the construction of "self-liquidating toll roads, bridges, high-speed highways and city bypasses," was made public at a special White House press conference at which Mr. Roosevelt discussed the text of a letter he had sent to Senator Byrnes, Democrat of South Carolina, with copies to Democratic congressional leaders and chairman of interested committees. "If you think well of such a program as I have outlined," the President wrote, "I shall be glad to confer with you and your colleagues and with members of the House of Representatives. Discussing the railway equipment phase of the program the President said that it had been worked out because of the general thought that it would be better to have some government authority or corporation acquire the equipment for lease to the railroads. With title to the equipment thus remaining with the government, he added, there would be no complications if a road using the equipment went into receivership. In this connection he also pointed out that legislation would be necessary before such a government agency could be set up. Also, he said there might have to be some supplementary legislation to extend the borrowing limits of various government lending agencies which would administer the different phases of the whole plan.

Loans to railroads for purchases of equipment, or purchase of the equipment

by a government agency for lease to the carriers, were discussed briefly by the President at the two White House press conferences prior to the one at which the Byrnes letter was made public. At his June 16 conference the President disclosed that in discussions with his chief financial advisers he has been exploring the field for self-liquidating projects which would be outside the federal budget, i.e., financed through security issues by independent federal agencies. As an example of projects under consideration the President cited the possibility of federal financing of new equipment for the railroads.

Such financing, he explained, could be arranged either through direct loans to the carriers, or the Reconstruction Finance Corporation could set up an affiliated corporation to acquire the equipment for lease to the roads. At his June 20 press conference the President said that he might have something on the matter by the end of this week. He added that this would not be confined to railroad projects nor would it be in the form of a message to Congress. At his June 21 press conference Secretary of Commerce Hopkins would not comment on the President's statement, but he did say that he knew the railroads were in need of new equipment—if freight traffic increases.

Senate Sub-Committee Considers Postalization-Study Resolution

Postalization of railroad rates got a sort of preliminary hearing before a Senate sub-committee on June 16 when the idea was hailed by its sponsors as a nostrum for all the country's economic ills and assailed by the railroads as only one of many "fantastic" schemes which they are told would solve their passenger traffic problems. The occasion was the hearing before the sub-committee headed by Senator Bone, Democrat of Washington, on Senate Joint Resolution 58 introduced by Chairman Wheeler of the committee on interstate commerce to authorize and direct the I. C. C. to make a postalization study.

This resolution was introduced after Chairman Caskie of the I. C. C. had advised Chairman Wheeler, in response to the latter's inquiry, that the commission thought it would be desirable to have a mandate from Congress and additional funds before launching such an extensive and expensive investigation. An appropriation of \$25,000 would be authorized for the work, which J. Carter Fort, general solicitor of the Association of American Railroads predicted, would develop into a probe of Hoch-Smith proportions—a "wild goose chase of the most obvious sort which will cost the railroads more money than it will the commission." Although the resolution as introduced would call for an I. C. C. study of postalized rates on both passengers and goods, testimony at the hearing was predicated on the assumption that the study would run only to passenger fares, in which connection Senator Bone indicated that the freight-rate angle would undoubtedly be eliminated from any version which the committee might report.

The star witness in favor of the resolution was John A. Hastings, former New York State Senator and author of a postal-

ization plan which he is now engaged in promoting from a Washington headquarters. For the record, Mr. Hastings said in response to Mr. Fort's questioning that he represented himself, and that postalization has been a hobby with him for 15 years. He does not expect to make any money if his plan is adopted; and the two full-page advertisements which appeared during the latter part of 1938—one in the Chicago Tribune and the other in the New York Times—were paid for by Frank R. Fageol, president of the Twin Coach Company, Kent, Ohio, whose only interest is to "bring about a contribution to national recovery." Mr. Hastings said that he is now associated with Mr. Fageol. The only other witness in favor of the resolution was Representative Lemke, Farmer-Laborite of North Dakota, who has introduced postalization legislation in the house, including a pending joint resolution identical with that on which the hearing was being held.

The hearing was rather a chummy, informal affair where any of the few attending were assured of their freedom to speak up and contribute to the record which Senator Bone tried to build on the basis of the need for the I. C. C. study rather than on the merits of postalization. Among those giving extended views in this connection was Senator Reed, Republican of Kansas, while witnesses in addition to Mr. Hastings and Representative Lemke were A. F. Cleveland, vice-president of the A. A. R. in charge of its Traffic Department; H. W. Siddall, chairman of the Trans-continental Passenger Association; and C. L. Hunter chairman of the Trunk Line Association's Passenger Department.

While Mr. Hastings plumped for the I. C. C. study he agreed with Senators Bone and Reed that only a practical trial of postalization would test its merits. Taking advantage of this admission, Mr. Fort at one point suggested the futility of the proposed I. C. C. study when "even Mr. Hastings says the plan would require a practical test." Asked by Senator Bone if he was getting anywhere with the promotion of a practical test, Mr. Hastings said he was making "substantial progress" in one local area.

Much of Mr. Hastings' time on the witness stand was taken up in the answering of questions from Senators Bone and Reed, although Senator Johnson, Democrat of Colorado, put a few questions, leaving after he had obtained from the witness an admission that the cost of moving a passenger seat one mile could not be determined. In direct testimony the witness read extracts from his latest pamphlet explaining his plan. The plan now calls for 10 zones with postalized coach fares running from \$1.25 for an intra-zone trip to \$12.50 for a transcontinental journey. After postalization, Mr. Hastings predicted, there will be, among other benefits, "vastly increased passenger travel by rail at profitable rates," reduced taxes and a lack of need for relief. Also, it will create a situation wherein the nation will be preserving the profit system, practicing democracy and really uniting the United States.

Senator Bone had some doubts about the analogy to the mail system pointing out that

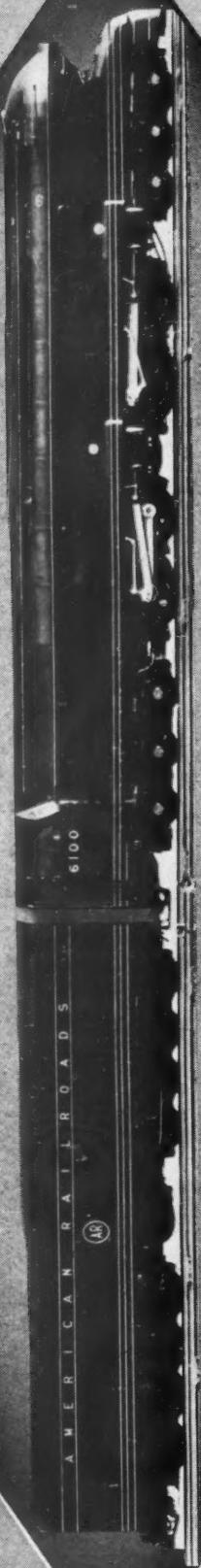
a man doesn't have to take time off from work to mail a letter whereas he would if he went in for postalized traveling. Whereupon Senator Reed drew upon his experience in the Post Office Department to explain that the cost of transportation is so small a part of the total cost of handling first-class mail as to be negligible, adding that first class mail (for which the revenue per pound is high) is the only class moving on rates which disregard distance. Meanwhile, however, the Kansan said he had no objection to any investigation in which there is a public interest; and he would vote for the resolution if the authorized expenditure were cut from \$25,000 to \$10,000, despite his view that no answer could be got unless some road or group of roads would co-operate on a practical test.

Vice-President Cleveland of the A. A. R. predicted that the proposed inquiry would bring "tremendous" cost to the railroads in that they would be required to answer detailed questionnaires and prepare for nation-wide hearings. Stating that the plan was too large for him to pick up and envision, Senator Bone asked for more information as to the prospective cost of the investigation to the railroads. Mr. Cleveland found an example in the above-mentioned investigation in response to the Hoch-Smith resolution. Meanwhile Mr. Fort had asserted that any attempt to install postalized rates would disturb the whole economic set-up, making a "shambles" out of the whole economic structure with gross discriminations against some and gross preferences to others.

Mr. Cleveland then went on to point out how the I. C. C. now has power to investigate postalization if it desires to do so, but he doesn't think such an investigation is any more warranted than would a study of the "hundreds and hundreds" of other "visionary" schemes which are brought to the railroads. In this connection Mr. Cleveland told of one idea man who developed a plan to double railroad passenger business with a special rate for persons attending funerals. The author of this plan had based his traffic estimates on the country's death statistics and a theory that because American families had become so scattered each funeral would, if the rates were right, bring business from the deceased's relatives desiring to be on hand for the service.

It was Mr. Cleveland's further testimony that postalization would be confiscatory because the railroads couldn't live under it. He quoted data designed to make the point that low rates do not always stimulate passenger business because there are other factors which determine the use of private automobiles, the main competitor of the railroads for passenger traffic. Mr. Hastings later undertook to refute this claim that low rates do not always stimulate business by citing results of the reduced fares installed in recent years. Meanwhile Mr. Cleveland had addressed himself further to the idea that everybody would travel if the rates were low, asserting that everybody wouldn't travel if travel were free. In the latter connection he pointed out how some railroad employees, entitled to passes, prefer to travel in their own automobiles. Also, the A. A. R. vice-president said that transportation is but a

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small part of travel expense, and he wondered how a person who has to make a living is going to find time to travel just for the sake of traveling. Senator Bone observed that private automobiles have done more "damage" to the railroads than have the buses and trucks; and he can't "visualize any change that might wean the average American away from his own automobile." Neither could the sub-committee chairman understand why the railroads would spurn an opportunity to get all the money that postalization's proponents claim their plan would give them if such a plan were feasible; but Mr. Hastings explained that it was all very clear to him—"you can't teach an old dog new tricks."

The hearing closed with brief statements in opposition to the resolution which were made in turn by Chairman Siddall of the Trans-continental Passenger Association and Chairman Hunter of the Trunk Line Association's Passenger Department.

Judge Orders Cut In Rutland Wages

(Continued from page 1092)

representing all employees, asserted in writing to the National Mediation Board that "we are willing to mediate . . . if and when the carrier will make conditions such that we can give proper attention to the question. We feel before we can approach a settlement of the question that we must know what is going to be done about the wages due the employees subsequent to August 4, 1938, that have been withheld. We also feel that the judge's order of July 30 should be withdrawn before any fair chance of a settlement in mediation can be expected." The receiver refused to comply with any of these conditions and the court refused to vacate the order of July 30. Hence the indefinite suspension of mediation proceedings.

The judge held that the Railway Labor Act does not give employees the right to require the receiver to perform such conditions in order to obtain mediation and that "he had the right to refuse to comply with them as he did." He found further that when the employees "violated the act by preventing mediation," the receiver was excused from complying with the act.

Discussing further the right of the receiver to reduce wages in disregard of the Railway Labor Act, Judge Howe contended that the railroad cannot be operated now or in the future without large losses unless wages are materially reduced and that the law does not require the receiver to use capital or go into debt to pay wages.

In April the National Mediation Board suspended proceedings held with respect to a wage reduction announced by the receiver on December 9 "until such time as the legal and property rights of the parties that are in question in the pending suit are determined by the courts." Reference is here made to a suit by W. F. Burke, a Rutland conductor, in behalf of the road's employees against the receiver to recover full cash payment of their wages, a portion of which was withheld by direction

of the court of July 30. Herein the plaintiff sought to enjoin the receiver from alleged violations of the Railway Labor Act and the laws of Vermont in withholding a portion of wages. He petitioned the court to order the receiver to pay the full amount of present wages to employees as well as of sums withheld in the past, the full amount of wages to be in accord with standard rates of pay as prescribed in the previous agreements.

Judge Howe dismissed this complaint the same day he issued the wage reduction order. In his decision on the petition he pointed out that by continuing to work for the railroad after the effective date of the wage deduction the employees tacitly agreed that they would accept cash for part of their wages and trust the receiver for the remainder, to become payable after deduction of taxes and other operating expenses and waive security for such payment. The judge held that this agreement did not make any changes in prior agreements affecting wages, pay or working conditions and further that the Railway Labor Act does not prohibit carriers from making such individual contracts with employees.

In both decisions the judge asserted, "The employees have been loyal and efficient about their work; have given the receiver credit for large percentages of their earnings—without this assistance the receiver would have been obliged to 'put up his engines'. It should be expected they would not willingly reduce their wages, for none of us want to do that. This is a tragedy in their lives. The prediction is they will not let it destroy the enterprise and themselves, too."

As of May 31 the portion of wages withheld totaled \$313,703, an average of \$31,370 per month. The portion of wages withheld between July 1 and August 4, 1938, totaling \$29,340 were paid by the receiver on April 5. Total payroll of the road in April, 1939, was \$176,344 and in May (estimated) \$185,043.

R. F. C. Att'y Fears Gov't Ownership

(Continued from page 1093)

peared in his capacity as chairman of the commission's legislative committee and presented the opinions of both the majority and the minority of the commission in regard to the pending bill. He told the committee that the majority of the commission felt that the creation of a railroad reorganization court would delay rather than expedite the progress of railroad reorganizations. The majority also felt that the proposed standards set up in the measure would in their combination with the "rebuttable presumption" be too rigid.

Commissioner Aitchison concurred in the report of the majority, but went on to say that he knew nothing which suggests the need for change as far as the jurisdiction of the courts is concerned. Commissioner Splawn disagreed with the majority, stating that he stood by the testimony that he gave before the committee at the opening of the hearings some weeks ago. Commissioner Alldredge concurred with Com-

missioner Aitchison, but went on to say that he was neither for or against the creation of a special court to handle railroad reorganizations.

Commissioner Eastman began his discussion by telling the committee that the commission had no disposition to retain any of its present powers dealing with reorganization if the Congress felt that they might better be lodged with some other agency. He denied that there had been any shuttling back and forth of reorganization cases between the commission and the various district courts, thus delaying reorganization. He also opposed the setting up of a rigid standard such as, he said, the bill contained.

The commission chairman-designate objected to the use of the term "putting them through the wringer" as describing the process by which the commission is now cutting down the capital structures of those roads in reorganization. He emphasized the fact that most of the railroad corporations had no water in their structures. At this point he said that he had received numerous letters from employees which led him to believe that they thought the railroads are being forced to pay interest "to the robber barons of Wall Street." This is not so, he pointed out, adding that all of the money now invested in the railroad structure constitutes an honest debt which should pay interest to the investor if the property is capable of earning it.

Mr. Eastman also observed that in his opinion the various reorganized railroad companies could not continue to operate the present physical plants if the earnings are only large enough to support a greatly reduced capitalization. In other words, the I. C. C. member saw the prospects of a greatly reduced railroad plant in the very near future as the result of the drastic revamping that is now in progress.

Representative McLaughlin asked Mr. Eastman whether or not he believed the present section 77 law is functioning satisfactorily. Mr. Eastman believed it was and that the commission is doing a good job under it. "We never do anything perfectly," he added. Asked what the cause of the delay in reorganization can be attributed to, Mr. Eastman replied that the trouble lay in the greatly reduced railroad earnings during the past few years which had made it virtually impossible to reorganize several of the railroads.

Representative Chandler asked Mr. Eastman how much weight the commission is giving to competing services when it writes a reorganization plan. Mr. Eastman said that the commission did take into consideration the effects of competing services on the prospective railroad earnings but that it was impossible to say just how much weight should be accorded this element. Replying to another question from Mr. Chandler Mr. Eastman warned the committee that it could not write into the law a blue print for the financial reorganization of a railroad. Rather, he felt that it should be left to the commission to say how much the new capital structure should be.

At the afternoon session the witnesses were Judge R. V. Fletcher, vice president and general counsel for the Association of American Railroads, who presented the

views of his association and the committee-of-six in support of the court feature of the bill but opposing the 12-year standard; and Tom J. McGrath, general counsel for the Brotherhood of Railroad Trainmen, who supported the measure as passed by the Senate.

Judge Fletcher's testimony followed the general lines of that which he gave before the Senate committee. He objected to giving the special court original jurisdiction in bankruptcy cases, but preferred that the district courts retain their original jurisdiction but allow the reorganization court to pass only upon the questions directly affecting the reorganization. In other words, he would have the district courts handle the operation of the carriers and permit the special court to determine the priorities of the various security holders and how much they would be permitted to participate in the allocation of new securities. He doubted the constitutionality of the provision of the bill which would permit the new court to delegate part of its jurisdiction to the district courts.

Besides objecting to the 12-year standard, Judge Fletcher also did not like the provision which would prohibit the appointment of a person connected with the railroad as a trustee. He told the committee that he could not see any difference in the operation of those roads which have independent trustees and those which have trustees who were formerly in charge of the road. He would rather leave the appointment of trustees entirely to the district judge and provide that no trustees need be appointed if the judge believed that to be best for the carrier.

Mr. McGrath favored the passage of the bill as passed by the Senate, but told the committee that his organization would accept the bill without the court if worse came to worse but that he believed it was a step forward in the reorganization procedure. Mr. McGrath attacked the testimony of Leslie Craven, counsel for the Railroad Security Owners Association, which was reported in last week's issue. He denied that Mr. Craven really represented the small investor in savings banks and insurance policies, saying that rather he represented the managements of these large fiduciary institutions who had a different viewpoint from that of the small investor.

House Bloc Fights Water Regulation

(Continued from page 1093)

statement and the Woodring letter printed in the Congressional Record. Whereupon Representative Mapes, Republican of Michigan, asked Mr. Warren if the latter could enlighten him in connection with rumors about "a very active lobby working on the membership of the House in behalf of the water transportation people" Mr. Warren had never "seen nor heard of a lobby in behalf of water transportation," but Mr. Mapes suggested that "surely the gentleman has heard of the Mississippi Valley Association." Mr. Warren had heard of that association, but he insisted

that the movement which he was launching "comes from members of the House," adding that the only lobby that has been around are "the railroad executives who have camped here from the time Congress opened." Although he knew that Mr. Warren "is not influenced by either one," Mr. Mapes nevertheless thought that the North Carolinian would find "a very active water lobby also."

Chairman Lea's remarks came in the course of the debate on the bill to extend the so-called Connally Hot-Oil Act. He told how the President had presented the transport problem to Congress and how the committee on interstate and foreign commerce had held 10 weeks of hearings on the omnibus bills, remaining faithful to the promise that the bill finally presented to Congress would be written by the committee. He assured his colleagues that the bill brought out would be "constructive and just in its application to our transportation industry and to the public."

"We have no motive to destroy water transportation," Mr. Lea went on. "We have unified regulation of highway and rail transportation. This system of regulation breaks down without the power to include all the principal competitors. To depend on regulation of interstate transportation without including water just does not make sense." Mr. Lea also answered questions regarding the effect of regulation on bulk carriers on the Great Lakes and the possibility of divorcing pipe lines from ownership by oil companies. The former, he said, would perhaps be exempt, while the omnibus bills contain no proposal to separate pipe lines from the oil companies.

Secretary Woodring's letter, printed in small type, occupies nearly five columns in the Congressional Record. It deals only with those provisions of H. R. 2531 (the Lea bill) and H. R. 4862 (the committee-of-six bill) which have to do with rivers and harbors. The Secretary of War, it appears, favors the bills' declarations of policy to promote adequate and efficient transportation but he is opposed to the more specific provisions, as noted above. In addition to his arguments in support of his opposition to regulation of water carriers by the I. C. C. and the imposition of tolls on waterways, Secretary Woodring undertakes to answer the charge made recently on the floor of the Senate that consumers pay the same price whether a commodity moves by water or by rail.

"Investigation by this department," he said in that connection, "tends to confirm the literal truth of that claim, but disproves the further claim that the difference is 'pocketed' by the middle man and not passed on. With the sharp competitive conditions and the narrow margins of profit under which business is conducted today, it is absolutely impossible to 'pocket' any savings permanently. It requires only the most elementary economics to show that they are either reflected directly in the base price of the commodity, or at the worst are 'put back into the business' to increase production, to extend the market, or to reduce the cost of manufacture. The aggregate freight bill paid in the distribution of steel both by rail and by water, is one of the elements of production, and in the

measure that it is made less costly by water transportation, its base price all over the country is reduced. This basic fact results in the uniform distribution of the benefits of water transportation throughout the land instead of permitting only the consumer who is located at a river port to benefit."

Mr. Woodring also opposed the committee-of-six recommendation that its proposed Transportation Board pass upon all proposals to extend transportation facilities. In this connection he denied that waterway surveys of the Army engineers are limited to the structural feasibility of proposed improvements—the engineers also make a "thorough study of the economic phases of each proposed river and harbor improvement."

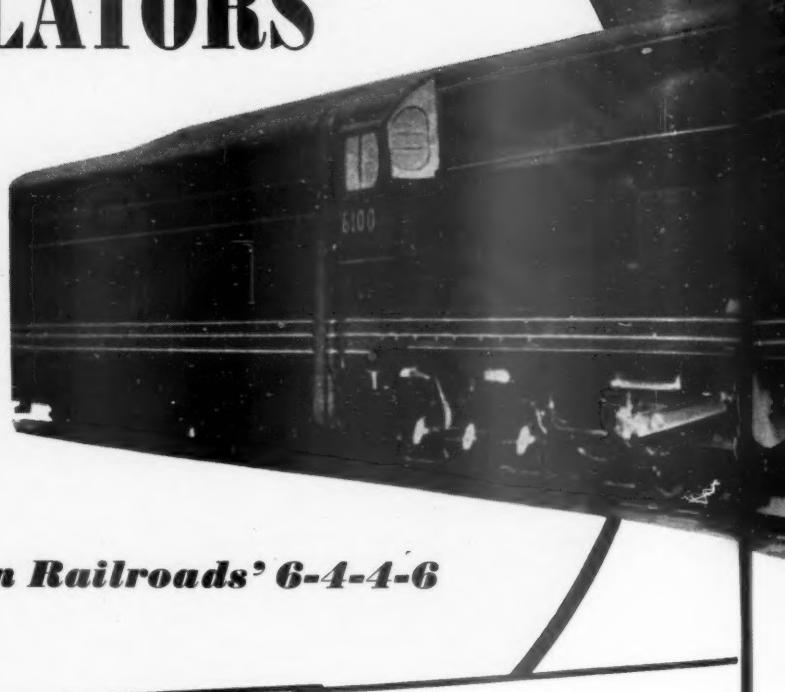
With respect to the reconstruction of bridges, Mr. Woodring's letter said that the War Department "can perceive no grounds to warrant the assumption by the federal government of the expenditure proposed" Also, the Department opposes "both in theory and in practice the proposal to recover from the users of waterways the value of the benefits received by attempting to exact tolls."

The statement of the waterway bloc's steering committee is in the form of a "Dear Colleague" letter to other members of the House. Among the opponents of the pending bills it lists the War Department, the United States Maritime Commission, the Interstate Commerce Commission, "Agriculture" and "Labor." The listing of the I. C. C. is based on Commissioner Eastman's testimony in opposition to S. 2009's plan of codifying the Interstate Commerce Act, although Mr. Eastman, speaking as chairman of the commission's legislative committee, favored I. C. C. regulation of water carriers. "Labor" is listed with the opposition because of the attitude of A. F. Whitney, president of the Brotherhood of Railroad Trainmen. In connection with Commissioner Eastman's opposition to codification, Mr. Lea revealed last week that the tentative draft of a bill now before the House sub-committee does not embody the codification idea; it would amend the present act and add new provisions dealing with water carriers.

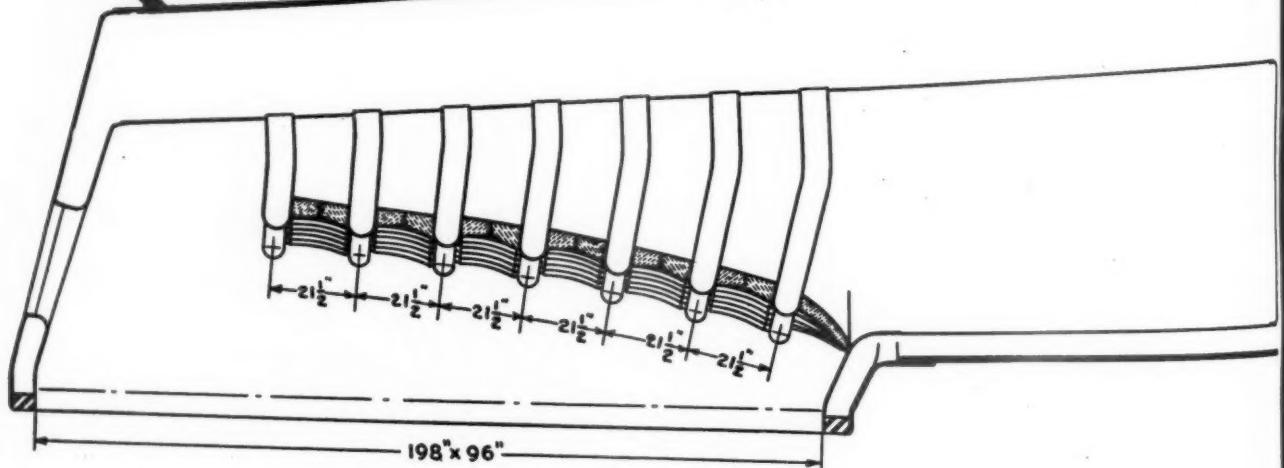
CALCIUM CHLORIDE AND PORTLAND CEMENT.—This is the title of a 48-page illustrated booklet issued by the Solvay Sales Corporation, Chicago, which discusses the use of calcium chloride in concrete. The booklet is divided into five sections, the first of which is devoted to an explanation of the changes in physical properties of concrete induced by the addition of calcium chloride, and is amply illustrated by graphs. The second section dwells on the practical application of calcium chloride in structural and paving concrete, and in concrete products. The remaining sections are devoted to questions and answers concerning the use of this product, abstracts from technical papers on the subject and specifications and recommendations on the use of calcium chloride with Portland cement including quantities and methods of using. The booklet is attractively illustrated with numerous photographs of concrete work.

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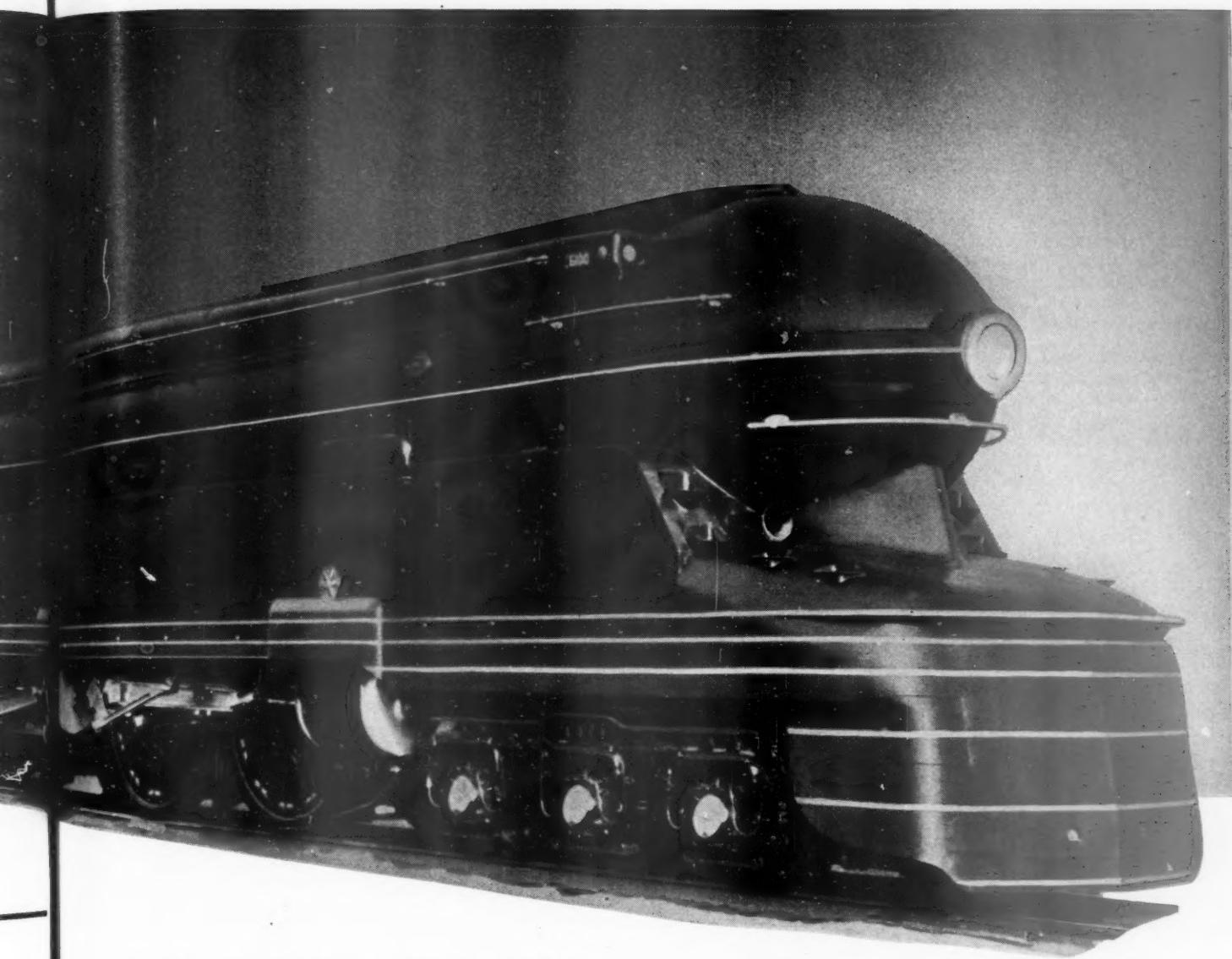


for the American Railroads' 6-4-4-6

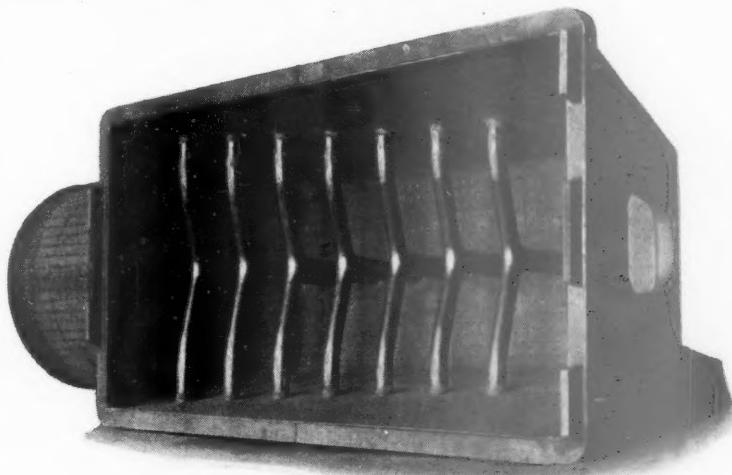


Line drawing of longitudinal section on center of firebox, showing arrangement of Security Circulators in American Railroads' 6-4-4-6.

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The Security Circulator makes it possible to support a properly proportioned arch in the 198" x 96" firebox of the American Railroads' 6-4-4-6 type locomotive. » » » While the Security Circulator was developed by the American Arch Company to keep pace with the demands for an improved brick arch support in large locomotives, it is equally adapted to all types and sizes of fireboxes. » » » In any locomotive firebox, irrespective of size, the Security Circulator will improve combustion and arch efficiency, reduce cinder cutting and flue stoppage, and improve the circulation in the side water legs.



Photograph of Security Circulators assembled in firebox.

C O M P A N Y, I N C.
New York Chicago

Supply Trade

The United States Rubber Company has moved its Detroit sales branch from East Jefferson Avenue to 5850 Cass Avenue.

The A. C. Cooper Sales Company, 220 E. 42nd street, New York City, has been appointed sales representatives for metropolitan New York, Long Island, and Northern New Jersey, of the **American Engineering Company**, Philadelphia, Pa.

Albert C. Pickett of the **Gustin-Bacon Manufacturing Company**, Kansas City, Mo., will be transferred to its Chicago office, effective July 1, as manager of the Insulation division of that company, Chicago district. Mr. Pickett was born at Waco, Texas, on October 5, 1897, and completed high school and business college



Albert C. Pickett

courses at that place. He served on the Missouri-Kansas-Texas and the Texas & Pacific in stenographic and clerical capacities in the mechanical stores, engineering and transportation departments, with the exception of a period during the World War when he was with the field artillery, United States Army, until 1922, when he became associated with the railroad department of the Johns-Manville Company, at St. Louis, Mo. In 1925 he was transferred by Johns-Manville to Houston, Texas, as sales engineer, where he was located until 1929, when he was promoted to assistant sales manager, transportation department, southwestern division, with headquarters at St. Louis. In 1933, he was promoted to sales manager and served in that capacity until he resigned, effective May 1, to enter the service of the Gustin-Bacon Manufacturing Company.

TRADE PUBLICATIONS

SUBDRAINAGE.—The Toncan Culvert Manufacturers' Association, Cleveland, Ohio, has issued a 34-page profusely-illustrated booklet bearing this title which deals at length with the various types of subdrainage problems that are encountered today. In different chapters, the booklet discusses the principles underlying the need for subdrainage, the effect of subdrainage on ground water, methods of constructing

subdrains, types of subdrainage installations and the requirements of subdrainage pipe. The different types of Toncan pipe that are suitable for subdrainage purposes are described, suggested specifications for this type of pipe are given and a number of tables containing equivalents and other information useful in the design of subdrainage installations are included.

HIGH-VOLTAGE CABLES.—The Okonite Company, Passaic, N. J., has published an illustrated booklet on Okolite insulation. This booklet contains data on the application and advantages of Okolite insulated cables for high voltage circuits, comparative curves of the operating efficiency, load carrying ability and moisture resistance. Additional data is given on installation methods, tests and available designs.

ZEOLITE WATER SOFTENING.—The Permutit Company, New York, has issued a 32-page illustrated booklet, known as Bulletin No. 597, which is devoted to the Zeolite method of softening water. Different subdivisions of the booklet discuss the chemical aspects of the Zeolite method, list and describe the various Zeolites that are used for this purpose, and describe the different types of equipment that are used in softening water by the Zeolite method.

HIGHWAY BRIDGES OF PRESSURE-TREATED TIMBER.—A survey of typical types of highway bridges in the United States that are built of pressure-treated timber has been published in the form of a booklet by The Wood Preserving Corporation, Pittsburgh, Pa. The survey covers 21 different structures, embracing various types of bridges that have been built under a variety of conditions. In each case the information given includes photographs, engineering drawings and data, the cost of the structure, and the saving in cost that was effected by using pressure-treated timber.

RAIL END HARDENING.—Teleweld, Inc., Chicago, has published a 12-page catalog entitled Rail End Hardening by the Teleweld Process of Electric Induction Heating, which explains the development of this process and the apparatus used, and discusses the proper hardness and hardness pattern desirable. The catalog is well illustrated by photographs of rail end hardening apparatus, sections of hardened rail ends showing the distribution of the hardened area and photographs showing the microstructure of the hardened zone of the rail ends. Included also is a page of graphs of typical hardness distribution.

LOCOMOTIVE EQUIPMENT.—Locomotive Equipment Bulletin No. B-1, just issued by the Wilson Engineering Corporation, 122 So. Michigan avenue, Chicago, is a well illustrated and informative 16-page bulletin giving a general description and part lists of the following products and appliances sold by this company: feed-water heater and water conditioner, general-service centrifugal pump, feed-water heat booster, air compressor radiation, terminal blow-down separator, blow-off mufflers and separators, blow-off cocks and sludge remover. The last page of the bulletin gives a list of 73 railroads on which all or part of this equipment is now in use.

Equipment and Supplies

LOCOMOTIVES

KANSAS CITY SOUTHERN.—The directors of this road, on June 20, authorized the purchase of a 1000-hp. Diesel-electric switching locomotive.

THE GREEN BAY & WESTERN has ordered three 2-8-2 type locomotives from the American Locomotive Company. These locomotives will have 22-in. by 30-in. cylinders, 64-in. driving wheels, 245-lb. boiler pressure and a total weight of 285,000 lb. in working order.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered a streamlined Diesel-electric locomotive from the American Locomotive Company. This locomotive and two ordered from the Electro-Motive Corporation, as reported in the *Railway Age* of March 18, will be used on the Denver and other Rockets.

THE CHICAGO, ROCK ISLAND & PACIFIC has undertaken a locomotive improvement program, for which \$442,000 will be spent. Included are 20,000-gal. capacity tenders for 21 locomotives, to cost \$202,000; and the enlargement of 12 tender tanks to 14,000-gal. at a cost of \$26,000 to permit longer operation and operating economy. Roller bearings and new engine trucks will be applied to 30 locomotives, at a cost of \$147,000.

FREIGHT CARS

THE DOW CHEMICAL COMPANY contemplates buying 10 tank cars of 50 tons and 8000-gal. capacity.

THE ERIE is inquiring for six auxiliary water tank cars of 70 tons' and 16,000 gal. capacity.

IRON AND STEEL

THE KANSAS, OKLAHOMA & GULF has ordered 3,200 tons of rails from the Carnegie-Illinois Steel Corporation.

SIGNALING

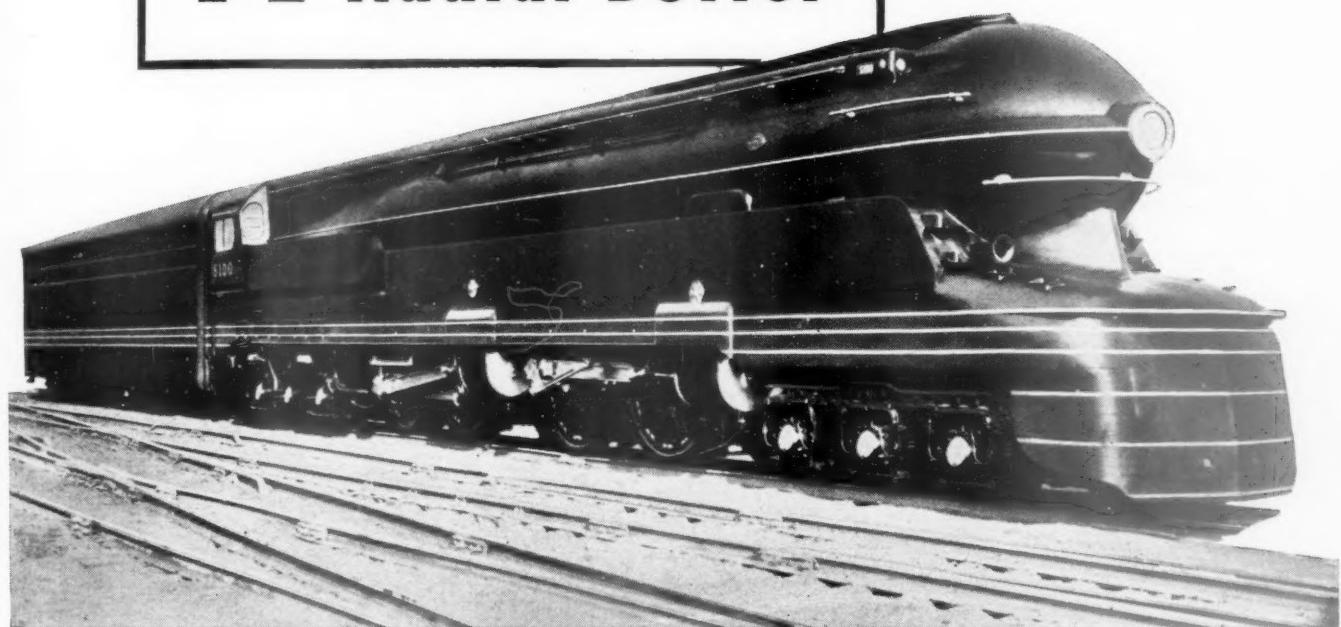
UTAH.—Bids will be received by the Bamberger Electric Railroad, room 213 Interurban depot, Salt Lake City, Utah, until 2:00 p. m. (mountain standard time), July 14, for materials necessary for the installation of six electric flashing highway crossing signals to be installed in the State of Utah under federal grade crossing projects. H. I. Price is purchasing agent at above address.

MOTOR VEHICLES

THE SANTA FE TRAIL TRANSPORTATION COMPANY has received delivery of nine 37-passenger buses from the a. c. f. Motors Company.

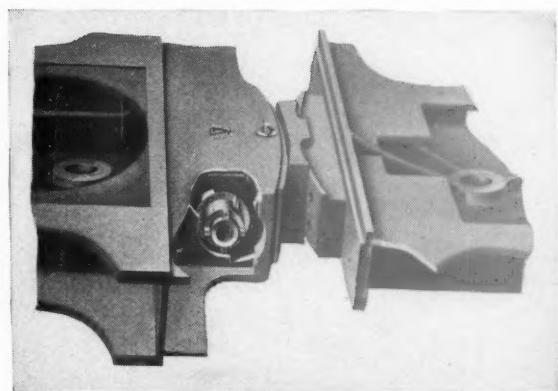
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THE
AMERICAN RAILROADS'
6-4-4-6
APPLIES THE
E-2 Radial Buffer



**...to assure easier riding...greater safety
...and lower maintenance**

All slack has been eliminated and excessive vibration avoided by the application of the Franklin E-2 Radial Buffer on the American Railroads' new 6-4-4-6 type locomotive. This application results in engine and tender becoming a single unit with greatly improved riding qualities, greater safety, and reduced maintenance.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

June 24, 1939

NEW YORK
CHICAGO
MONTREAL

THE IRON HORSE

70

Construction

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—A contract has been awarded the Ross and White Company, Chicago, for a direct, automatic locomotive coaler to be built at Elgin, Ill.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract amounting to \$65,000 has been awarded the List & Weatherly Construction Co., Kansas City, Mo., for the construction of three new bridges in Colorado and Nebraska on the Western division of the Rock Island to replace open deck pile trestles. One of the new bridges, near Bethune, Colo., over Lostman creek, will consist of two 90-ft. and one 60-ft. deck plate girders on reinforced concrete piers and abutments, supported on steel foundation piles. Concrete slab bank protection will be constructed around the west header bank of this bridge and extended upward one-third of the height of the embankment. A second new bridge over Spring creek, near Bovina, Colo., will consist of two 80-ft. deck plate girders with a concrete pier and abutments resting on a solid rock foundation. The third bridge, near Rokey, Neb., will be made up of two 60-ft. and one 75-ft. deck plate girders. The concrete piers of this bridge will be supported by creosoted foundation piles and the abutments by steel piles. All three bridges will have ballast decks.

GREAT NORTHERN.—The North Dakota State Highway Department has awarded a contract, amounting to approximately \$144,000, to the Rue Construction Company, Bismarck, N. D., for the construction of an underpass for U. S. Highway No. 10, under two tracks of the Great Northern about one and one-half miles south of Casselton, N. D. The bridge will consist of a single span on reinforced concrete abutments with a deck of steel beams and ballast plates and with a concrete facia girder and trainman's walk on each side. The bridge will allow a 44-ft. clear roadway underneath between the curbs and an overhead clearance of 14 ft.

ILLINOIS CENTRAL.—A contract has been awarded the Ross and White Company, Chicago, for direct, automatic locomotive coalers for Hattiesburg, Miss., and Gulfport.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—A contract amounting to approximately \$35,000 has been awarded the Ernest M. Ganley Company, Minneapolis, Minn., for the construction of an addition to the machine shop and the rebuilding of a locomotive transfer table at the Shoreham shops of the Soo Line in Minneapolis.

SOUTHERN PACIFIC.—The United States Bureau of Reclamation has awarded a contract to R. G. Clifford, San Francisco, Cal., amounting to \$1,223,186 for construction work on the relocation from mile post 278.55 to 282.60 of the 30-mile Southern Pacific line change north of Redding, Cal., in connection with the Shasta Dam and the Central Valley Project. Principal quantities involved in this contract include 1,-

159,000 cu. yd. of excavation for roadway, 30,000 cu. yd. of sluiced rock fills in embankments, 96,100 cu. yd. of tunnel excavation, 26,200 cu. yd. of concrete for tunnels, including portals, the placing of 2,000,000 lb. of reinforcement bars, furnishing and installing 420,000 lb. of permanent steel tunnel supports and the erection of 110,000 lb. of structural steel for a highway underpass.

UNION PACIFIC.—A two-story passenger station of mission-type architecture will be constructed at Las Vegas, Nev., as soon as plans have been prepared and approved. The station and improvements will cost about \$90,000.

Financial

BALTIMORE & OHIO.—Abandonment and Acquisition.—This company has asked the Interstate Commerce Commission for authority to acquire trackage rights over the Western Maryland from Belington, W. Va., to Norton, 10 miles and to abandon its Belington branch extending from Leiter Junction, W. Va., to Belington, 8.4 miles.

BALTIMORE & OHIO.—Abandonment by the Buffalo, Rochester & Pittsburgh.—The Baltimore & Ohio has asked the Interstate Commerce Commission for authority to abandon the operation of the line and the Buffalo, Rochester & Pittsburgh has asked for permission to abandon the Lucerne branch extending from valuation station 246 plus 52 to the end of the line at valuation station 346 plus 60.5, 1.9 miles, in Indiana County, Pa.

BAMBERGER.—Acquisition.—This company has been authorized by Division 4 of the Interstate Commerce Commission to acquire the properties of the Bamberger Electric.

CHESAPEAKE & OHIO.—Holding Com-

pany Officers.—Allen P. Kirby was elected president of the Alleghany Corporation, top holding company of the former Van Sweringen system, at a meeting on June 15, succeeding George A. Tomlinson, chairman of the Pere Marquette, who resigned recently. Mr. Kirby is already a director of Alleghany and was a member of the original trio associated with Robert R. Young, Alleghany chairman, who purchased control of the corporation from the George A. Ball interests. Frank B. Bate-man of Blair & Co., Inc., was elected to the board of directors, succeeding Mr. Tomlinson, and Frank B. Bernard resigned from the board.

Directors of the corporation approved a plan for altering the indentures of Alleghany 5's of 1944 and 5's of 1949 to provide for the use of deposited cash for the purchase and retirement of bonds below par, use of certain portion of income received on pledged collateral for corporate expenses and alteration of the status of income received from the Chesapeake Corporation from capital to income, permitting the use of income for interest payments.

CHICAGO & EASTERN ILLINOIS.—Reorganization plan approved.—The plan for the reorganization of the Chicago & Eastern Illinois, previously approved by the Interstate Commerce Commission, as reported in the *Railway Age* of November 19, 1938, was confirmed on June 17 by the federal district court at Chicago. Fees and expenses in connection with the plan were also confirmed by the court. The plan for reorganization now will be certified back to the Interstate Commerce Commission and security holders will be asked to vote upon it. If two-thirds of those voting approve the plan, the action of the security holders will be certified back to the federal district court and the court will order the plan put into effect. In the event that two-thirds of those voting do not approve the plan, it will be referred back to the federal district court and a hearing held as to its fairness to the various classes of security holders. Following such a hearing, the court in its

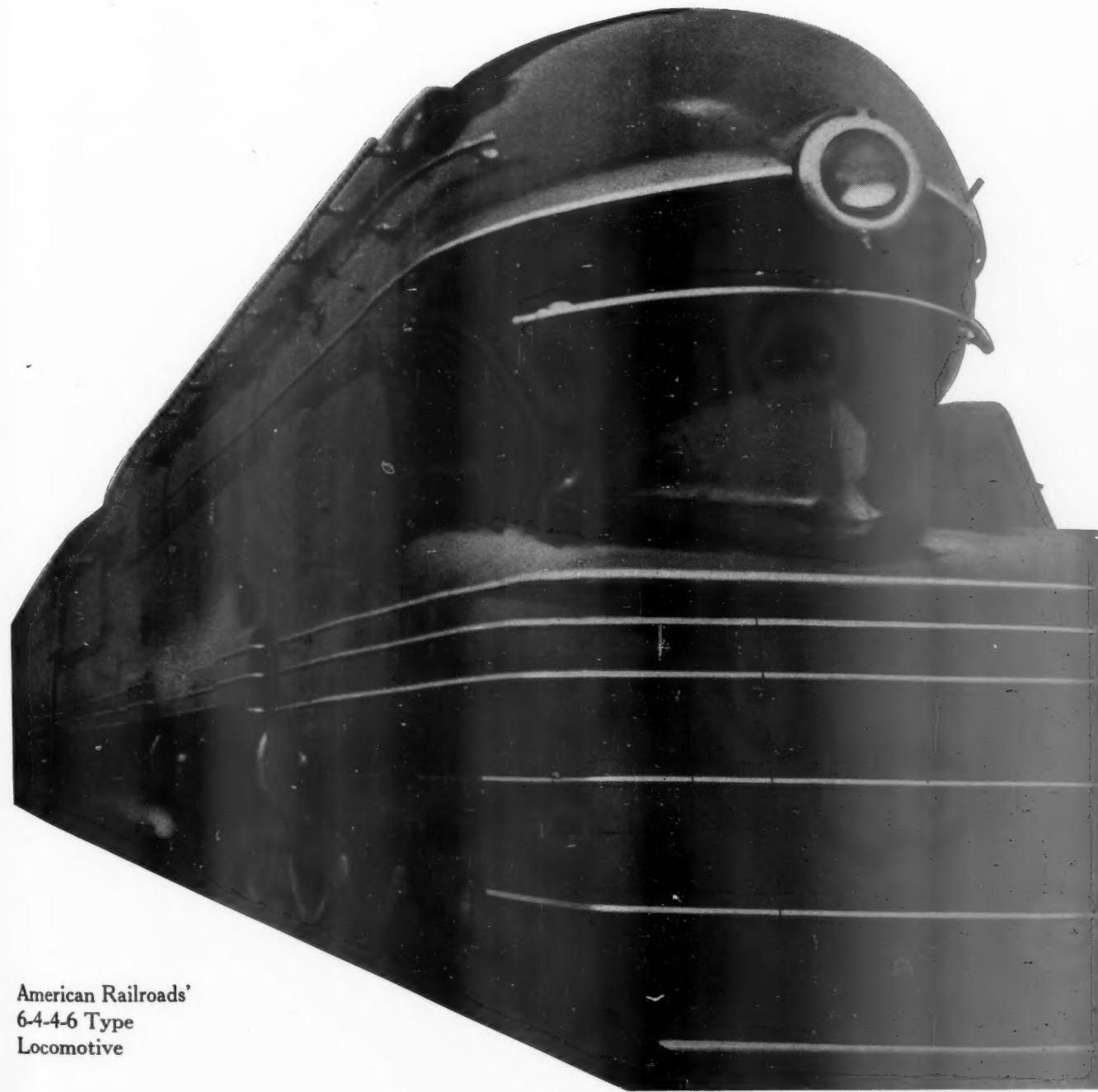


Railroad Hobbyists Take Time Out to Photograph Double-Header Excursion Train on the Southern New Jersey (Formerly the Tuckerton) at Tuckerton, N. J.

Continued on next left-hand page

AMERICAN RAILROADS' LOCOMOTIVE

On Exhibit at the New York World's Fair... Is Equipped With
An AMERICAN MULTIPLE-VALVE THROTTLE



American Railroads'
6-4-4-6 Type
Locomotive



A-1329

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.

60 East 42nd Street, NEW YORK 122 S. Michigan Ave., CHICAGO

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discretion can proceed to order the reorganization plan carried out. The remaining steps are expected to be concluded within the calendar year.

In approving the plan of reorganization, the court pointed out that while the plan might not be perfect it "is certainly a good plan, which closely approaches the best plan that could be devised. There comes a time in all reorganization proceedings when it is much more desirable to get the property out of court under a good plan than it is to delay the matter in court in order to attempt to formulate a perfect plan." The plan would reduce the outstanding obligations of the company from approximately \$85,000,000 to \$61,000,000.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has found that this company's present earnings are insufficient upon which to base a reorganization plan. Division 4's opinion went on to say that "While we are not recommending that the proceeding be dismissed and make no finding at this time as to the value of the equity in the property of the debtor, we conclude that we should not approve a plan of reorganization for the debtor unless and until further operations of the property disclose the possibility of more profitable operation than is at present apparent". This conclusion is without prejudice to the continuation of the reorganization proceedings.

CLINTON, DAVENPORT & MUSCATINE.—*Abandonment.*—Division 4 of the Interstate Commerce Commission has dismissed, at this company's request its application for authority to abandon the operation of a line extending from Davenport, Iowa to Shaffton and to abandon a line extending from Shaffton, Iowa, to Clinton.

DENVER & RIO GRANDE WESTERN.—*Equipment Trust Certificates.*—This company has asked the Interstate Commerce Commission for authority to assume liability for \$1,545,000 of series E equipment trust certificates. They will bear interest at a rate not exceeding three per cent and will mature in equal annual amounts on August 1, in each of the years from 1940 to 1954.

ERIE.—*Abandonment by New York & Greenwood Lake.*—The Erie has asked the Interstate Commerce Commission for authority to abandon the operation and the New York & Greenwood Lake has requested permission to abandon the line extending from Wanaque-Midvale, N. J., to Ringwood, 5.8 miles.

GULF, MOBILE & NORTHERN.—*Abandonment of Operation.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon operation, under trackage rights, over the Illinois Central between Bemis, Tenn., and Paducah, Ky., and over terminal facilities of the Nashville, Chattanooga & St. Louis at Paducah, about 113 miles. Division 4's report differs from that of Examiner R. R. Molster who recommended that the company's application be dismissed because of its prematurity. Details of the case and Examiner Molster's recommendations were outlined in the *Railway Age* for January 21, page 175.

ILLINOIS CENTRAL.—*Abandonment by the Yazoo & Mississippi Valley.*—The Yazoo & Mississippi Valley would be authorized to abandon a part of its branch line extending from Spanish Fort, Miss., in a southwesterly direction to the junction of its main line at Kelso, 11.3 miles, if the Interstate Commerce Commission adopts a

proposed order of its examiner, Jerome K. Lyle.

KANSAS CITY SOUTHERN-LOUISIANA & ARKANSAS.—*Joint Operation.*—These companies have been authorized by Division 4 of the Interstate Commerce Commission to operate under trackage rights (1) by the former over 9.1 miles of main line and 17.6 miles of other tracks of the latter, and (2) by the L. & A. over 22.8 miles of main line and 34.8 miles of other tracks of the Kansas City Southern, and over 0.1 mile of main line and 1.5 miles of other tracks of the Kansas City, Shreveport & Gulf Terminal; all within the switching limits of Shreveport, La.

MINNEAPOLIS & ST. LOUIS.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon the following lines: From Watertown, S. Dak., to Aberdeen, 85.2 miles; from Conde, S. Dak., to Akaska, 102.8 miles; and from Aberdeen, S. Dak., to Leola, 29.6 miles.

PENNSYLVANIA.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon that portion of its so-called Stevens branch extending from valuation station 33 plus 00 to the terminus of the branch at valuation station 83 plus 68, approximately one mile, all in Cambria County, Pa.

PRESCOTT & NORTHWESTERN.—*Bonds.*—This company has been granted authority by Division 4 of the Interstate Commerce Commission to issue \$75,000 of first mortgage bonds, to be delivered at par in exchange for a like principal amount of its outstanding first mortgage six per cent gold bonds, due October 1, 1939. The new bonds will bear interest at the rate of

The Baltimore and Ohio Railroad Co. SUMMARY OF ANNUAL REPORT FOR THE YEAR 1938

Report of the Company's operations for the year 1938 is being mailed to the stockholders. Stated briefly, the results for the year show a decrease of 20.49% in gross revenues, or from \$169,436,436 in 1937 to \$134,722,330 in 1938, and an increase in the net loss, after all taxes and other deductions, from \$720,695 to \$13,124,530.

Total operating expenses of \$104,984,021 showed a reduction of \$23,875,495, or 18.53%, compared with the year 1937. The expenses reflect an increase in wage rates which took effect in the latter half of 1937 and added about \$4,150,000 to the company's expenses in 1938.

Railway tax accruals, at \$10,412,774, reflected a decrease of \$505,781. Tax accruals include \$3,709,108 pay-roll taxes covering unemployment compensation under the Social Security Act and the Carriers' Taxing Act of 1937 for the purposes of the Railroad Retirement Act.

CONDENSED STATEMENT OF OPERATING RESULTS

	Year 1938	Year 1937	Decrease
Railway Operating Revenues:			
From Freight	\$115,426,378	\$147,212,330	\$31,785,952
From Passenger	10,561,495	11,918,602	1,357,107
From All Other Sources.....	8,734,457	10,305,504	1,571,047
Total	\$134,722,330	\$169,436,436	\$34,714,106
Railway Operating Expenses....			
	104,984,021	128,859,516	23,875,495
Net Railway Operating Revenue..	\$29,738,309	\$40,576,920	\$10,838,611

Other Operating Charges:

Railway Tax Accruals.....	10,412,774	10,918,555	505,781
Equipment and Joint Facility Rents	4,473,741	4,749,740	275,999
Net Railway Operating Income ..	\$14,851,794	\$24,908,625	\$10,056,831
Other Income from Investments and Other Sources (Net)..	4,207,959	6,554,711	2,346,752
Income Available for Fixed Charges	\$19,059,753	\$31,463,336	\$12,403,583
Fixed Interest and Other Charges	32,184,283	32,184,031	*252
Net Income	D\$13,124,530	D\$720,695	\$12,403,835

(*) Denotes Increase. (D) Denotes Deficit.

BALANCE SHEET

The balance sheet at December 31, 1938, shows total investments (less accrued depreciation) of \$1,078,104,478 and current assets of \$23,818,931. The total of interest bearing debt and leased lines obligations outstanding was \$683,808,070. Current liabilities amounted to \$26,855,503. The capital stock outstanding was \$315,158,485 and corporate surplus \$60,337,728.

The report presents a condensed statement of the Plan for Modification of Interest Charges and Maturities, and points out that of the total of \$542,810,628 of securities affected by the Plan, voluntary assets have been received on \$469,481,178, or 86.49 per cent, from more than 57,000 holders.

DANIEL WILLARD,
President.

[Advertisement]

five per cent per year and will mature October 1, 1944.

RAPID CITY, BLACK HILLS & WESTERN. —*Bond Extension and Stock.*—This road has applied to the Interstate Commerce Commission for authority to extend for 30 years the maturity date of \$274,500 of its first mortgage bonds which matured on May 1, and to reduce the interest rate from 5 per cent to 3½ per cent. The proposed extension is part of a voluntary plan for a readjustment of the road's capitalization in which connection the application also seeks authority for the issuance of \$109,800 of Class A first preferred stock, \$205,765 of Class B second preferred stock and \$100,000 of common to be exchanged for presently outstanding stock and used in refunding existing obligations.

SOUTHERN.—*Stock of C. N. O. & T. P.*—The Cincinnati, New Orleans & Texas Pacific has applied to the Interstate Commerce Commission for authority to issue 448,500 shares of common stock with \$20 par value to be exchanged on a five-for-one basis for 89,700 shares of \$100-par common now outstanding. The application is in accordance with the road's plan of changing its present authorized common stock from 90,000 shares of \$100 par to 1,000,000 shares of \$20 par; the 551,500 authorized shares remaining after the exchange will be reserved for future issues.

SOUTHERN - CENTRAL OF GEORGIA - ATLANTA & WEST POINT.—*Bonds of the Atlanta Terminal.*—The Atlanta Terminal has asked the Interstate Commerce Commission for authority to issue \$1,600,000 of first mortgage four per cent bonds to refund \$1,200,000 of outstanding bonds due August 1, and to pay \$213,486 of debt owed to its stockholders, the Southern, the Central of Georgia, and the Atlanta & West Point. The bonds, which will be guaranteed jointly and severally by these roads, have been sold at 100.52 per cent of par and accrued interest to the New York City investment firm of Dick & Merle-Smith.

SOUTHERN PACIFIC.—*Acquisition.*—This company has asked the Interstate Commerce Commission for authority to acquire control of the South San Francisco Belt by purchase of its capital stock. The company also wishes permission to lease the properties of the South San Francisco Belt.

TOLEDO & INDIANA.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its interurban electric line extending from Vulcan, Ohio, to Bryan, 51.7 miles.

WABASH.—*Receivers' Certificates.*—Division 4 of the Interstate Commerce Commission has modified its order of March 17, 1934, so as to limit the amount of receivers' four per cent registered serial certificates of indebtedness that may be issued thereunder by this company to \$1,443,000 instead of \$1,481,000 as originally authorized.

Dividends Declared

Allegheny & Western.—\$3.00, semi-annually, payable July 1 to holders of record June 19.
Joliet & Chicago.—\$1.75, quarterly, payable July 3 to holders of record June 15.

Railway Officers

EXECUTIVE

Lawrence B. Burford, whose appointment as assistant vice-president in charge of freight rates and divisions on the Erie, was announced in the *Railway Age* of June 10, was born at Washington, D. C., on October 29, 1879, and attended Chicago University. He entered railway service in 1902 as a clerk in the freight office of the Erie at Chicago, and later served in various clerical capacities until 1908, when he was promoted to chief of the tariff bureau. Two years later he was transferred to New York and in 1911, he was promoted to general agent at Baltimore, Md. In 1915, he was appointed assistant to the general traffic manager at New York and during the World War he was furloughed to the British Ministry of Shipping at New York, serving as assistant director of inland shipping of grain and grain prod-

coal traffic manager and the vice-president at that point. Mr. Kennedy was promoted to division freight agent at Roches-



William V. Kennedy

ter, N. Y., in 1917, and to general freight and passenger agent at Chicago in March, 1920. In 1927, his title was changed to general freight agent and in December, 1928, he was advanced to assistant freight traffic manager, with headquarters at Chicago, the position he held at the time of his recent promotion.



Lawrence B. Burford

ucts for the Allied governments. Mr. Burford returned to the Erie in 1919 as assistant general freight agent at New York and in 1920, he was appointed general freight and passenger agent at Hornell, N. Y. He was appointed general freight agent at New York in 1922 and in 1928, he was advanced to assistant freight traffic manager at that point. Mr. Burford was advanced to freight traffic manager, with headquarters at Cleveland, in August, 1931, the position he held until his recent appointment.

William V. Kennedy, whose promotion to assistant vice-president in charge of solicitation on the Erie, with headquarters at Chicago, was announced in the *Railway Age* of June 10, was born in Chicago on December 30, 1879, and attended the Chicago Athenaeum College. He entered railway service on March 1, 1898, with the Chicago and Ohio River committee of the Central Freight Association and in 1903 he went with the Erie at Cleveland, Ohio, later that year being promoted to chief clerk of the general freight department at Chicago. In 1911, he was transferred to New York as chief clerk to the assistant freight traffic manager, the

FINANCIAL, LEGAL AND ACCOUNTING

Harry A. Brown, whose retirement as treasurer of the Pullman Company, with headquarters at Chicago, was announced in the *Railway Age* of June 10, was born at St. Johns, Newfoundland, on March 28, 1869, and entered the service of the Pullman Company on May 25, 1887, as a junior clerk. On November 10, 1909, he was elected assistant treasurer of the manufacturing department and three years later he was elected assistant treasurer of the company. Mr. Brown was elected treasurer on October 20, 1926, and held that position until his retirement.

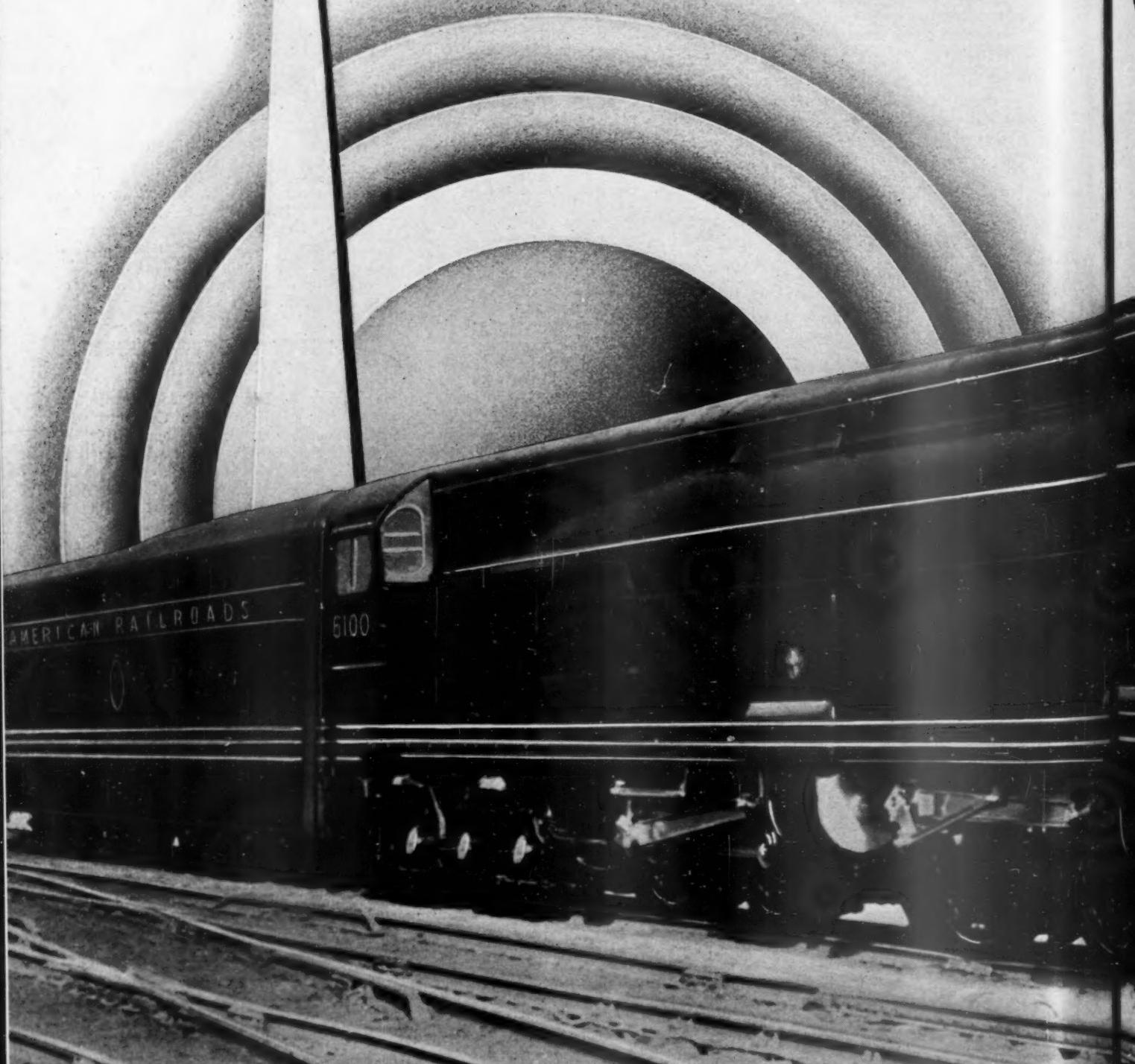
Robert J. Lascelles, whose promotion to treasurer of the Pullman Company, Chicago, was announced in the *Railway*



Robert J. Lascelles

Age of June 10, was born at Capron, Ill., on March 9, 1894, and graduated from the

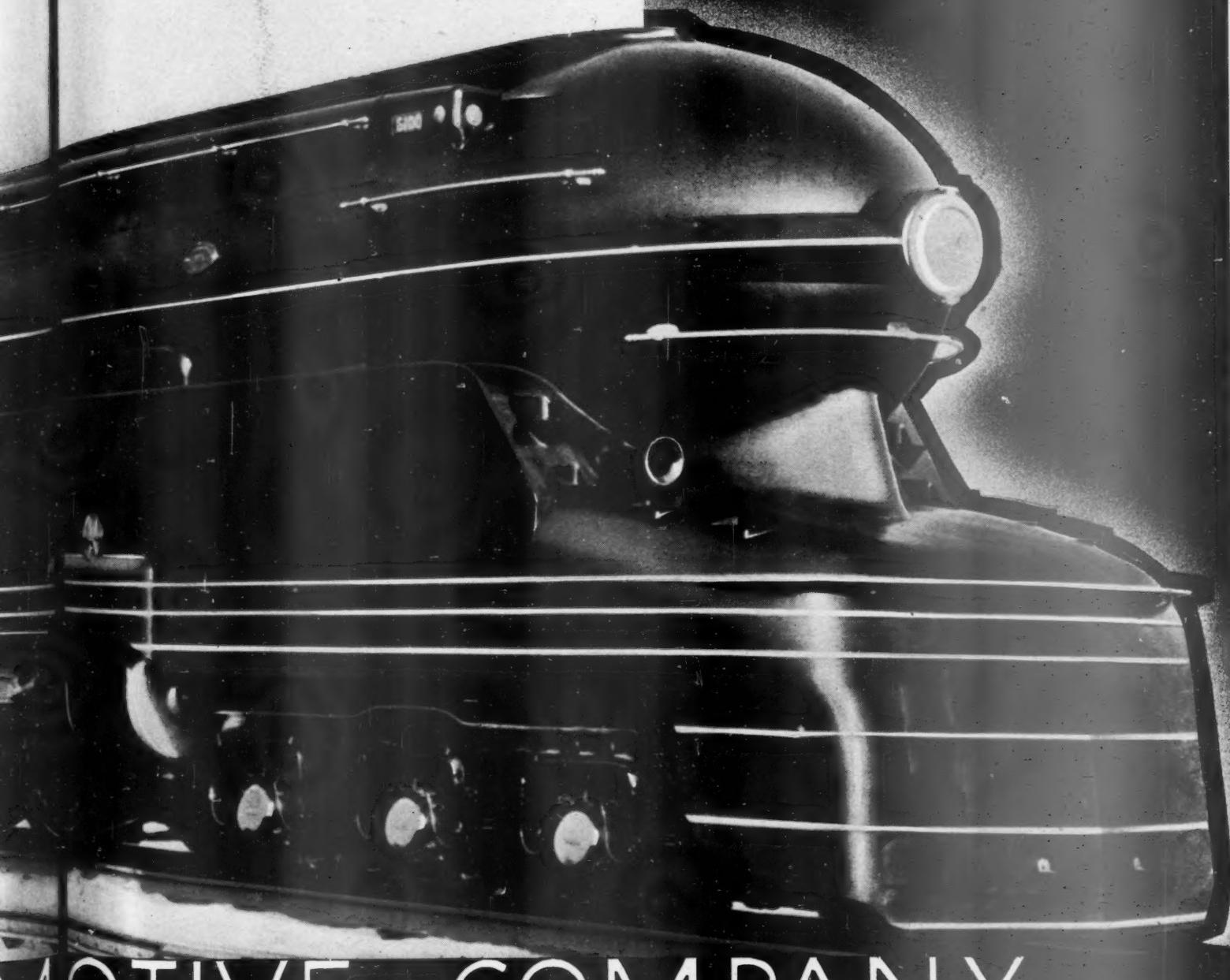
THE LOCOMOTIVE OF



AMERICAN LOCOMOTIVES
30 CHURCH STREET

TOMORROW

THIS 'S-1' is a new type of steam passenger locomotive capable of hauling a 14-car train at one hundred miles per hour. The design was worked out by engineers of the American, Baldwin and Lima Locomotive Companies in collaboration with the Pennsylvania Railroad Company which employed Raymond Loewy for the styling. It was built by the Pennsylvania Railroad at its Altoona works, Altoona, Pa. This locomotive is 140 feet long, weighs 958,000 pounds in working order, has four cylinders and two sets of driving wheels. With its four pair of driving wheels it develops 6,500 horsepower at one hundred miles per hour. The tractive power is 76,400 pounds. Its boiler has 7,746 square feet of heating surface and operates at 300 pounds pressure. Its 16-wheel tender carries 24,000 gallons of water and 26 tons of coal.



MOTIVE COMPANY
NEW YORK • N.Y.

University of Illinois in 1917. Mr. Lascelles entered the service of the Pullman Company on March 9, 1923, as assistant to the vice-president and on October 20, 1926, he was appointed assistant treasurer, holding that position until his recent promotion to treasurer.

A. W. Eckstein, assistant to the advertising agent of the Illinois Central at Chicago, has been promoted to advertising agent, with the same headquarters, succeeding **G. T. Savage**, who has been assigned to special duties.

Chandler W. Durbrow, whose promotion to general solicitor of the Southern Pacific, with headquarters at San Francisco, Cal., was announced in the *Railway*



Chandler W. Durbrow

Age of June 10, was born in San Francisco on January 28, 1876, and graduated from Yale University in 1902. He entered railway service on the Southern Pacific on January 2, 1903, and after serving in various positions in the legal department of that road, was advanced to attorney with headquarters at San Francisco, on March 19, 1927. A month later he was promoted to valuation counsel and in July, 1933, he was further advanced to assistant general solicitor, the position he held until his recent promotion.

OPERATING

W. L. Ison has been appointed superintendent of scales of the Texas & Pacific, with headquarters at Dallas, Tex., succeeding **J. C. Bardin**, deceased.

C. F. Donnatin, division superintendent on the Southern Pacific, with headquarters at Los Angeles, Cal., has been promoted to assistant general manager, with headquarters at San Francisco, Cal., succeeding **L. U. Morris**, who will retire July 1.

James A. Seeley, transportation inspector on the Atchison, Topeka & Santa Fe, at Galesburg, Ill., has been promoted to passenger trainmaster at Kansas City, Mo., succeeding **Robert L. Hooks**, whose death on June 6 is announced elsewhere in these columns.

Effective July 1, **H. M. Glandon**, assistant to the general superintendent of

transportation of the Railway Express Agency, Inc., at Chicago, will be promoted to superintendent of transportation at that point, relieving **C. J. Lederer**, who will be transferred to St. Louis, Mo. Mr. Lederer will succeed **Charles W. Julier**, who will retire on that date after 54 years' continuous service.

H. C. Willis, night chief dispatcher on the Atchison, Topeka & Santa Fe, at Newton, Kan., has been promoted to acting trainmaster on the Middle division of the Western district, Eastern lines, with headquarters at Newton, succeeding **H. G. Focht**, trainmaster, who has been transferred to the territory formerly under the jurisdiction of **H. S. Nelson**, with headquarters as before at Newton. Mr. Nelson has been granted a leave of absence because of illness.

Russell G. Willson has been appointed superintendent of power and equipment of the San Francisco & Napa Valley, with headquarters at Napa, Cal., succeeding **George A. Hearn**, who has resigned after 34 years of service to devote his entire time to personal affairs. Mr. Hearn, in 1919, designed and installed the electrical apparatus and equipment for the extension of the San Francisco & Napa Valley into Mare Island Navy Yard. Mr. Willson was formerly associated with the Inland Empire Railway, at Spokane, Wash.

Effective July 1, **Frank A. Lehman**, general manager of the Eastern lines of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., and **J. R. Hitchcock**, general manager of the Coast lines, with headquarters at Los Angeles, Cal., will retire. **Frank L. Myers**, assistant general manager of the Southern district of the Western lines of the Santa Fe and also of the Panhandle & Santa Fe, with headquarters at Amarillo, Tex., will also retire on July 31. The men who will succeed to these positions have not yet been selected.

TRAFFIC

W. W. Fell, traveling freight agent on the Chesapeake & Ohio, has been promoted, effective July 1, to general agent at Atlanta, Ga., to succeed **R. F. Williams**.

R. D. Taylor, general baggage, express and mail agent of the Coast lines of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., has been appointed also, general baggage agent of the Santa Fe Transportation Company (motor transport subsidiary) with the same headquarters.

Harold C. Millman, chief clerk in the division freight office of the Pennsylvania at Cincinnati, Ohio, has been promoted to industrial agent at Chicago, succeeding **Bruce K. Wimer**, who has been transferred to Philadelphia, Pa. Mr. Wimer replaced **George E. Fetterman**, whose death on May 6 was announced in the *Railway Age* of May 13.

C. C. Gray, general freight agent in charge of solicitation on the Western

Maryland at Pittsburgh, Pa., has been promoted to assistant freight traffic manager, solicitation, with headquarters at Baltimore, Md., a newly created position. **Paul T. Healy**, general agent at Cleveland, Ohio, has been transferred to Pittsburgh, replacing Mr. Gray and **A. E. Bourne**, general agent at Detroit, Mich., has been transferred to Cleveland, relieving Mr. Healy. **E. W. Bardgett**, commercial freight agent at Chicago, has been promoted to general agent at Detroit, succeeding Mr. Bourne.

Ian Warren, assistant to the overseas passenger traffic manager of the Canadian Pacific, Montreal, Que., has been appointed



Ian Warren

overseas passenger traffic manager, to succeed **H. W. Brodie**, who will retire on June 30 under the pension rules after more than 44 years of service.

After experience in the engineering and construction departments, Mr. Warren joined the passenger department of the Canadian Pacific in 1924 as secretary to the assistant passenger traffic manager. He was appointed chief clerk in 1928 and became assistant to the overseas passenger traffic manager at Montreal in 1930.

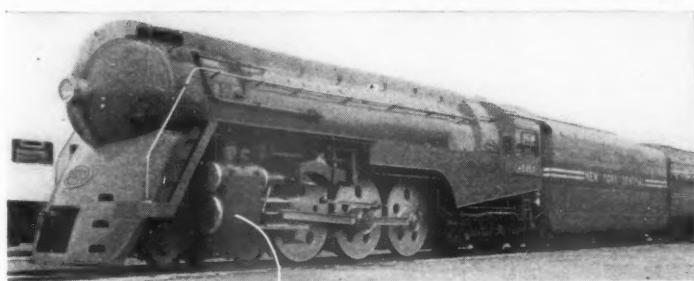
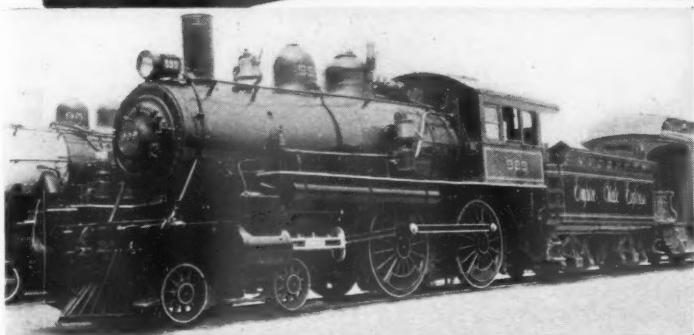
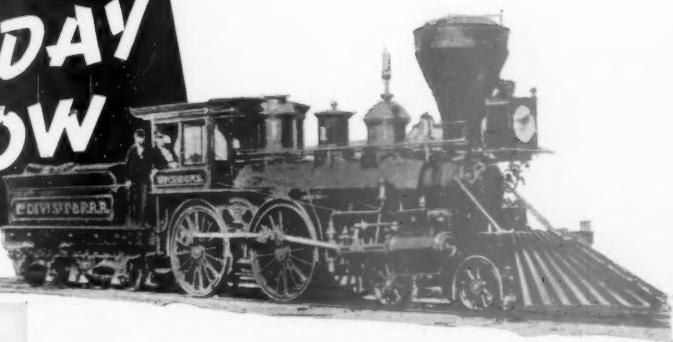
Mr. Brodie was born at Fredericton, N.



H. W. Brodie

B., on June 8, 1874, and was educated in the public schools at St. John, N. B. He served as stenographer at St. John and Boston, Mass., and as chief clerk at Toronto, Ont., and Winnipeg, Man. In 1903

**ON THE POWER
of YESTERDAY-TODAY
and TOMORROW**



THE history of HUNT-SPILLER Air Furnace GUN IRON dates back many years before the railroads.

Therefore, it is only natural that some of the "old timers", as well as modern power on exhibition at the New York World's Fair are equipped with wear-resisting parts made from HUNT-SPILLER Air Furnace GUN IRON.

In addition to other vital parts the driving wheel centers on the famous "999" which established one of the fastest speed records in history were cast from HUNT-SPILLER Air Furnace GUN IRON.

The more severe the requirements the greater the need for HUNT-SPILLER Air Furnace GUN IRON. Performance on modern power shows the way to economies for tomorrow.

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Export Agent for Latin America:

International Rwy. Supply Co., 30 Church Street, New York, N. Y.



Air Furnace

HUNT-SPILLER GUN IRON

he was appointed assistant general passenger agent at Winnipeg; in 1910, general passenger agent at Vancouver, B. C.; and in 1922, assistant general passenger traffic manager at Montreal. Mr. Brodie was appointed overseas passenger traffic manager in April, 1930.

J. L. Cook, general freight agent on the St. Louis Southwestern, with headquarters at St. Louis, Mo., has been promoted to traffic manager, with the same headquarters, succeeding **W. F. Knobeloch**, whose resignation on June 1, to accept the chairmanship of the Southwestern Freight Bureau at St. Louis, was announced in the *Railway Age* of May 6. Mr. Cook entered railway service on November 15, 1905, as a bill clerk for the Illinois Central at Belleville, Ill., and later served in various capacities on the Union Pacific, the Denver & Rio Grande Western and the Western Pacific. On November 16, 1925, he went with the St. Louis Southwestern and after serving in various positions in the traffic department, was promoted to assistant general freight agent at St. Louis in September, 1929. The following spring his title was changed to assistant general traffic agent, and in the fall of 1935, Mr. Cook was advanced to general traffic agent. In the spring of 1935, his title was changed again to general freight agent, the position he held at the time of his recent promotion.

ENGINEERING AND SIGNALING

John E. Yewell, supervisor of track on the Bessemer & Lake Erie, with headquarters at Greenville, Pa., has been promoted to engineer of bridges and buildings with the same headquarters, succeeding **John S. Ekey**, whose death on June 3 was announced in the *Railway Age* of June 10.

P. L. Koehler, assistant division engineer on the Chesapeake & Ohio at Russell, Ky., has been promoted to division engineer of the Ashland division, with headquarters at Ashland, Ky., succeeding **L. T. Nuckles**, whose promotion to engineer of track, with headquarters at Richmond, Va., was announced in the *Railway Age* of June 10. **H. S. Talman**, assistant division engineer at Richmond, has been transferred to Russell, replacing Mr. Koehler.

Edwin J. Bayer, assistant division engineer of the Ohio division of the Cleveland, Cincinnati, Chicago & St. Louis (Big Four), at Springfield, Ohio, has been promoted to division engineer on the New York Central, with headquarters at Jersey Shore, Pa., succeeding **Frank G. Smith**, who has been transferred to the Illinois division of the Big Four, with headquarters at Mattoon, Ill., relieving **L. B. Elliott**. Mr. Elliott has been transferred to the Ohio division of the Big Four, with headquarters at Bellefontaine, Ohio, replacing **John E. Kissell**, whose death on May 8 was announced in the *Railway Age* of May 13.

O. B. Robbins, assistant engineer on the Southern at Washington, D. C., whose promotion to assistant bridge engineer, with the same headquarters, was noted in the June 10 issue, was born on August 23,

1878, in Le Sueur county, Minn. Mr. Robbins obtained his higher education at the University of Minnesota, graduating in



O. B. Robbins

1903 with the degree of civil engineer. During summer vacations while attending college, Mr. Robbins served with the Great Northern and the Northern Pacific on location and construction projects. After his graduation he was employed for a short time by the American Bridge Company as a draftsman, leaving this company in 1904, to go with the Great Northern where he served as a draftsman, inspector on field work and chief draftsman in the bridge department. In 1916, he became connected with the Bureau of Valuation of the Interstate Commerce Commission, being placed in charge of structural work for the Central district, with headquarters at Chicago. In 1921, he was sent to Washington as assistant bridge engineer of the Bureau of Valuation, remaining in this capacity until 1924, when he entered the service of the Southern as a designer in the office of the bridge engineer at Washington. Two years later he became an assistant engineer in the same office, which position he held until his recent appointment as assistant bridge engineer.

R. H. Meintel, supervisor of track on the Pennsylvania at Huntingdon, Pa., has been promoted to assistant division engineer of the Fort Wayne division, with headquarters at Fort Wayne, Ind., a newly created position.

MECHANICAL

G. C. Hess, assistant road foreman of engines of the Maryland division of the Pennsylvania, has been appointed acting road foreman of engines of the New York division.

OBITUARY

Robert L. Hooks, passenger trainmaster on the Atchison, Topeka & Santa Fe, with headquarters at Kansas City, Mo., died suddenly at that point on June 6.

John F. Durkin, superintendent of car service of the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Cleveland, Ohio, died at that point on

June 16. Mr. Durkin was born at Peoria, Ill., on September 17, 1865, and entered railway service in August, 1888, with the Peoria & Pekin Union. Two months later he went with the Nickel Plate at Cleveland and in September, 1890, he went with the Indiana, Illinois & Iowa (now a part of the New York Central system) at Kankakee, Ill. In May, 1893, he returned to the Nickel Plate as superintendent of car service and in September, 1923, he was promoted to assistant superintendent of transportation, with headquarters at Cleveland. Mr. Durkin was re-appointed superintendent of car service in the fall of 1932, holding that position until his death.

Roy Cotsworth Gowdy, chief engineer of the Colorado & Southern, the Fort Worth & Denver City and the Wichita Valley, with headquarters at Denver, Colo., died suddenly at his cabin in the mountains near that city on June 10. Mr. Gowdy was born at Washington, Iowa, on September 3, 1878, and attended Colorado College one year. He entered railway service in 1899 as a rodman and assistant engineer on the Colorado Springs & Cripple Creek (now part of the Colorado & Southern), serving in this capacity until 1900 when he resigned to enter college. In September, 1901, he returned to the Colorado Springs & Cripple Creek as a rodman and draftsman and a year later he went with the Denver



Roy Cotsworth Gowdy

Northwestern & Pacific (now part of the Denver & Salt Lake) as a draftsman and levelman on location and construction. In 1905, he returned again to the Colorado Springs & Cripple Creek as assistant engineer and chief draftsman and in 1906 he became a draftsman and clerk in the consulting engineer's office at Colorado Springs, Colo. In 1907 he was appointed resident engineer on the Fort Worth & Denver City, with headquarters at Fort Worth, Tex. Mr. Gowdy was advanced to chief engineer of the Wichita Valley in 1910, and in 1918, he was appointed corporate chief engineer of those lines, and also of the Colorado & Southern, with headquarters at Denver. In 1920, after the termination of government control, Mr. Gowdy became chief engineer of those lines, continuing in that position until his death.

The Week at a Glance

TINCUP TRANSPORT: The rivers and harbors congress wound up its meeting in Washington last week after hearing its projects committee endorse almost 700 million dollars worth of new schemes to provide transportation for shippers (and fat construction contracts) at the taxpayers' expense.

RRs BRING RFC PROFIT: Uncle Jesse Jones at the R. F. C. has sold off some of his railroad equipment trust certificates and other securities at a profit to the government of over \$1,000,000. Showing the strength of equipment obligations, it is to be noted that, of 7 issues sold, only one is of a company which is neither in trusteeship nor in process of voluntary readjustment—and yet every issue fetched a premium.

LOADINGS FORECAST: Carloadings in the second quarter of the current year should be 12.6 per cent above those of the same period in 1938, according to the estimates of the Shippers' Advisory Boards. The big increases (25 to 50 per cent) are predicted by the Allegheny, Great Lakes and Northwest boards, while substantial increases (around 15 per cent) are foreseen by the Pacific Northwest and Ohio Valley conferees.

FEBRUARY NET DOWN: Net railway operating income in February was 18.6 millions—a bad drop from the almost 33 millions earned in January, but a big improvement over the 2 million deficit in February, 1938. The rate of return for January and February would point to net railway operating income for the whole year of less than 500 million dollars.

C. & O. CONFAB DUD: The transportation conference operating under the friendly offices of the U. S. Chamber of Commerce this week held another meeting and adjourned after voting against a resolution calling for the creation of a governmental agency to investigate "the relative equality of government provisions for and regulation of rail, motor and water transportation." The conference contains representatives of so many conflicting interests that it might find it hard to agree even on a statement deplored by the man-eating shark.

GUESS WHO?: We have seen a letter from the head of one of the leading railway unions, addressed to local lodges and legislative representatives, which ends with the injunction that, "State full-crew laws and train-limit legislation are still the order of the day." For the Fuehrer of this particular union, there is no holiday on legislation harmful to the railroad industry—and he particularly disavowed action taken by his union in one state to "prevent legislation which might cost the railroad something."

1938 PURCHASES OFF 43%: The railroads spent 678 million dollars for materials, equipment and fuel in 1938, which was more than $\frac{1}{2}$ billion dollars less than they spent in 1937. The details, by com-

modities, and by individual railroads are given in an article in this issue.

6-COMMITTEE "HIRED MEN": Leslie Craven, telling the Lea Committee what the security owners think of the Committee-of-Six report, referred to the "Six" as "hired men" of the railroad industry. He said that, in testifying in behalf of their report, neither of the committee's spokesmen had anything to say about the investor or creditor. The latter, he added, very much want the railroad situation cleared up so they will have some place to put their money. They are having a "devil of a time" finding such a place now.

BITTER BOWEN: The Bus Operator's lawyer, Ivan Bowen, at the Lea bill hearing last week, sailed into almost every proposal made to ameliorate the condition of the railroads. Emulating Big Bill Thompson, he hates the idea of a "transportation board" because it's "British"—and he likes very much having government bureaus acting as promotion agents for pet forms of transportation—his favorite, seemingly, being the Bureau of Public Roads.

TOO MUCH TRANSPORT: The key to the present chaos in transportation lies—not in the inadequate regulation of transportation services; but in the lack of any reasonable check on the construction of transportation facilities. This is the contention of the leading editorial herein, which points to the unreasoned multiplication of waterways and heavy-duty commercial highways as a disturbing factor to orderly transportation which no amount of regulation of boats and trucks or relaxed regulation of the railroads could possibly counteract. America is overpopulated with transportation facilities; isn't it about time to apply a little "moral restraint" to avoid their further undue multiplication?

MEET THE SCOT: An illustrated article describing the L. M. S. "Coronation Scot"—now on a tour of the territory east of the Mississippi prior to exhibition at New York's World's Fair, is published herein. Aside from being an eyeful from the standpoint of appearance, the Scot is full of interest as a construction job (structurally as well as in decoration).

GENTLEMAN JOE: Disavowing the desire to be "unduly critical," Commissioner Eastman called the effort of counsel for the Committee-of-Six to codify the Interstate Commerce Act "really a stupid performance"—which leaves one wondering just what his language might have been if he were not, as he indicated, restraining himself. At the top of his list of desirable measures, Mr. Eastman placed that creating the proposed "Transportation Authority." Inasmuch as some such plan is the only one offered which holds out any hope for curtailing wasteful multiplication of transportation facilities—and since most of the present troubles arise from these excess facilities—maybe the Commissioner has got something there.

"SIX" FOES VOCAL: Donald Conn of the Transportation Association made a speech in Providence this week in which he looked critically upon the "Transportation Board" and the "Re-organization Court" as proposed by the Committee-of-Six. Mr. Conn suspects the fine Italian hand of the Labor organizations in these two proposals and is fearful that the former might be used to "minimize the use of competing forms of transportation." There have been several other critics of the "Transportation Board," some concerned lest it should detract from the I. C. C.—but the Commission itself seems to have no such worries, because it is favoring a similar "Transport Authority" in its own recommendations to Congress. The idea of such an investigating body seems particularly to chill the spines of the railroads' competitors, as well it might.

WHEELER BILL: The House Interstate Commerce Committee having completed its hearings on proposed transportation legislation, Senators Wheeler and Truman have finally got around to introducing their "key" bill which would place all forms of transportation under the regulation of the Interstate Commerce Commission. The duty of making studies of transport subsidies and the relative economy of the several agencies of transportation would be placed on the I. C. C. itself if these Senators' advice is followed—instead of to a new body as the Commission recommends.

C. & O. MERGER HINT: In a brief filed in the Erie re-organization case this week the Chesapeake & Ohio urged the preservation of its stock interest in the Erie looking to the eventual merger of these properties. The C. & O. brief maintained that merger of the Erie, the Nickel Plate and the Pere Marquette with the Chesapeake & Ohio would result in annual savings of \$3,000,000.

FUEL FIGURES: Statistics of fuel performance are unsafe guides for comparing the fuel efficiency of different railroads, and an editorial herein tells some of the reasons why. Some of the factors which affect fuel figures are: Whether traffic is dense or thin, whether the coal used has high or low heat content, whether the fuel is burned in a fire-box or consumed by a Diesel engine. The figures only become facts, safe for comparative purposes, when performance records for different periods of time are compared for the same railroad or the same division.

TRACK INSPECTION CAR: A track inspection car with instruments which make a continuous graphic record of track conditions is a C. & O. development described and illustrated in an article herein. With seats in the observation end on an incline so the gents in the back row can see too, the instrument set-up clocks the curvature and alinement, cross level and superelevation and surface variations in each rail—with time and distance checks so that the exact location of each indication can be determined.

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The Week at a Glance

RRs ON TOWN HALL: The popular "Town Hall" forum on the radio Thursday evenings will devote its April 13 program to the railroads—with Senator Wheeler, Commissioner Eastman and A. A. R. President Pelley as the speakers.

LOWER RATES, MORE REVENUE: Rates can be reduced on traffic now vulnerable to truck competition without lowering the general railroad rate level. Such, at any rate is the contention of this week's installment in the "What Will the Traffic Bear?" series, which tells specifically how such rate changes can be made.

BIG BUSINESS RACKET: Senator Wheeler has discovered how big corporations are using the device of inland waterways to swell their own profits at the expense of the taxpayers and the railroads. The device is simple—the corporations save in shipping expenses by using the waterways the taxpayers have provided, but collect the rail freight rate from their customers, and pocket the difference. George Harrison told about buying an automobile recently—being charged the f.o.b. price plus the railroad freight rate. He found later, however, that his car had been trucked over the highway at a "saving" (but not to the customer) of \$15.

HARRISON ON I. C. C. BIAS: The I. C. C. is "biased" on questions of "convenience and necessity"—so George Harrison testified before the Senate Interstate Commerce Committee this week. The Commission, he continued, is bent on the idea of shrinking the railroads and expanding motor transportation. Mr. Harrison does not believe that the I. C. C. should have power to make "convenience and necessity" decisions, which should be left to the proposed new "transportation board." The I. C. C. has proved its incompetence to handle "transportation board" functions fairly, because one commissioner has already prejudged the "subsidy" question upon which it would have to report.

C. N. J. INTERLOCKING: The large and modern electro-pneumatic route interlocking installation which the C. N. J. has installed at Elizabethport, N. J.—necessitated by extensive track relocation in connection with a complex crossing-elimination project—is described herein. In the winter, 255 passenger trains and 100 freight trains use the plant daily (in addition to switching movements); and in summer, even this heavy traffic is exceeded—so the installation has been designed to provide for quick action, flexibility, and safety.

CAUSE OF RR ILLS: Inadequate net earnings are the sole reason for present difficulties of the railways—and no "remedy" which will not increase net earnings will provide a cure. There are two paths to larger net earnings—one being reduced operating expenses and the other being larger gross. The principal item of operating expense is wages, the leading editorial herein points out, and prospects for

reducing them (by co-ordination or otherwise) are very poor. Changes in government policies toward general business which would increase industrial production and railroad traffic would boost gross revenues, but such changes are a slim prospect under the New Deal. Equalized competitive conditions between the railways and their rivals would improve railway net earnings—but such changes also are opposed by political pressure. Thus, it is clear that there can be no solution to the railroads' difficulties which is going to be agreeable to everybody—and any "remedy" which is generally agreeable will be *ipso facto* no cure.

THE "SCOT'S" LOCO: An illustrated description of the 4-cylinder locomotive which pulls the "Coronation Scot" is published herein—with a comparison between it and recent American power. Noteworthy is the fact that the Britisher's clearances are about 2 ft. less, both vertically and horizontally, than its American contemporaries—which goes a long way to explain some of the differences in design.

WHEELER IN A HURRY: The Senate Interstate Commerce Committee got its hearings under way this week on the several bills before it to reform the nation's transport policy. It has taken the Senator several years to get down to business but, if "outward and visible signs" mean anything, there is not going to be any dawdling in the Senate committee. In particular, the waterway interests have been warned to pick out a few witnesses—they are not going to be allowed to string out their testimony indefinitely in order to delay action.

UNCLE SAM, BUSYBODY: Characteristically, as the leading editorial herein points out, the big shots of this country are trying to tell Europe how to settle its complex economic and political problems to our satisfaction while they neglect to correct the relatively simple economic and political difficulties presented by our own transportation mess. Unable to curb our own peewee non-cooperators, we set ourselves up as experts on bringing into line the large-scale self-seekers now on the loose on the continent of Europe.

HOW TREAT TIMBER?: Is straight creosote required or can satisfactory results be obtained by diluting the creosote with petroleum or coal tar? Tables showing the practices of 64 different railroads are presented herein, disclosing that most of the larger roads are using mixtures on ties but are sticking to straight creosote for other treatment.

UNCLE JESSE ADVISES: The chairman of the R. F. C. told the Lea committee last week a few of his observations on the railroads, which are recorded elsewhere herein. He expects "no serious loss" from R. F. C. loans to the railroads, and he is again lending equipment money at 2 per cent. "If mopey is worth anything," he said, "it ought to be paid for—if not let's go to printing it."

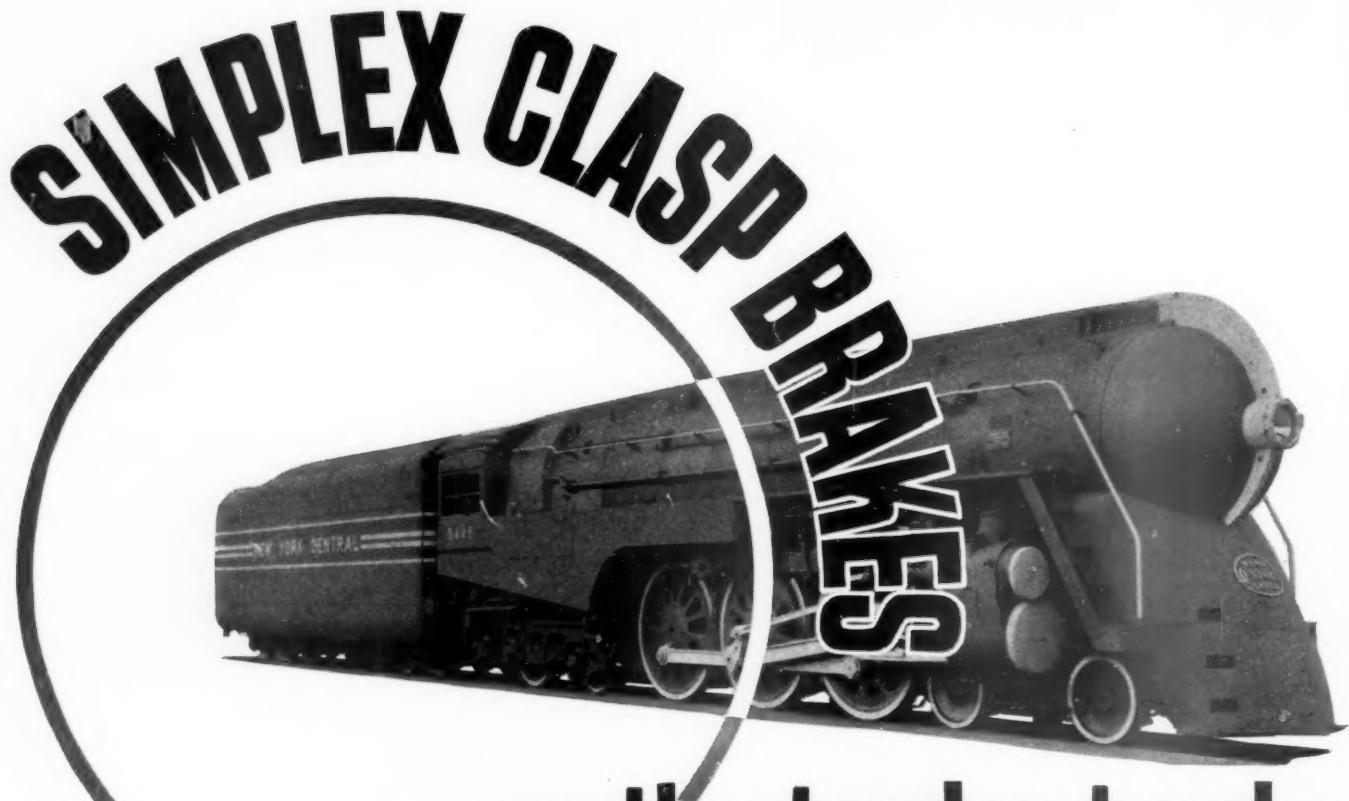
BEAVER-MAHONING: This ditch—proposed to be constructed at the expense of the general taxpayers and the railroads for the benefit of a handful of big shippers—shows the need for some board to pass on the public need for additional transportation facilities. Such was the contention of Judge Fletcher at the Wheeler Bill hearing this week—and he would prefer to have an independent board rather than the I. C. C. to do the deciding. (Senator Wheeler's Bill calls for assigning a study of the relative economy of the various agencies of transport to the I. C. C.—but he says the decision on this point is "up to the Committee".)

PEACE REIGNS IN A. A. R.: It is only in details that there is any disagreement among A. A. R. members—they are all in accord on "fundamentals." Such was the tenor of a statement issued following a meeting of the Association's directorate in Washington last week. Some of the "details" about which A. A. R. members do not see eye-to-eye are the Six-Committee's proposal for a "transportation board" and a "reorganization court"—and the failure of the A. A. R. to push amendments to the Railway Labor Act.

PENSIONS EXCEED ESTIMATES: Pension payments to retired railroad employees for the fiscal year 1938 were estimated at 64 million dollars—actually they totaled almost 83 millions. In the current fiscal year they will run over 100 millions, topping the estimate by better than 50 per cent. These disturbing figures were disclosed in a report by the Railroad Retirement Board to the House Interstate Commerce Committee, which has before it a flock of bills to "liberalize" pensions and add many millions more to pension expenses.

HISTORICAL CONSIST: A train headed by a modern 4-4-4 locomotive but containing in its consist other rolling stock a century old or more—and some piece of equipment representing almost every decade of the past 100 years—was scheduled to leave Baltimore over the B. & O. just as this issue goes to press. The destination of the motley train, as our customers will have guessed, is the New York World's Fair.

TRUCK TAX SOPHISM: In the New York Times one day this week a trailer manufacturer published an advertisement purporting to show that trucks are taxed 47.6 per cent on their valuation ("impossible as it may seem"), whereas railroad taxes are alleged to be only 1.43 per cent of valuation. "These fellows must be pretty desperate, when they stoop to such palpably misleading comparisons as this"—was the remark of one noted economist. To make a valid comparison of taxes between trucks and railroads, the honest statistician would add the cost of maintenance and interest on the railways' roadway to railroad taxes. What truckers call their "taxes" include both capital and maintenance expenses on their roadway.



...on the tender trucks of 50 new locomotives

Ten of the locomotives are streamlined, as illustrated; the remainder are of the conventional type.

All of the 50 new locomotives built by the American Locomotive Co. for the New York Central have Simplex tender truck Clasp Brakes.

With high speeds and quick stops becoming increasingly important, Simplex Clasp Brakes are a necessity in the operation of modern power and passenger equipment, as well as in the operation of steam and Diesel switchers.



AMERICAN STEEL FOUNDRIES

The Week at a Glance

GOODY: The House committee on rivers and harbors has "indefinitely postponed" its hearing on the proposed Beaver-Mahoning canal.

A SMIDGEON MORE JOBS: There were about 6,000 (0.62 per cent) more men working on the railroads in March than in February. Compared with March a year ago, the improvement was a little better than 2 per cent.

SEEKS A NO-CAHOOTS LAW: Tom McGrath, B. of R. T. lawyer, doesn't like the consolidation provisions of the proposed Wheeler-Truman bill (S. 2009) and would prefer to have those of the Coordinator Act of 1933 which almost prevented one carrier from saying hello to another one—let alone doing anything to co-ordinate or consolidate. Senator Wheeler (who seems to be warming up plenty to the task of constructive legislation) asked the labor witness how the railroads could be forced to employ men where there isn't any business.

HOW SMART ARE RRs?: Senator Wheeler admonished Ivan Bowen, lawyer for the bus operators, against his "hysterical" fears that the railroads will "slip something over" in the current legislative proposals. If the railroads were smart enough to do that, the senator reassured his terror-stricken witness, they would not be in the shape they are today.

1917 AND NOW: \$1.94 was what it cost to operate a train one mile back in the "test period"—but in 1937 the expense had climbed to \$3.53. Back yonder a train-mile took in 75 cents above expenses, but in 1937 the velvet had worn down to 64 cents. Taxes per train-mile were only 13 cents back in 1917, but now they are more than 35 cents. These and other significant changes (all of them for the worse) in the railroad business are brought out in a statistical study just issued by the I. C. C., and reviewed herein.

INVENTORY DOWN: From the beginning to the end of 1938, materials and supplies in railway stores declined more than 68 million dollars (the largest reduction in any year since 1921-22). This decrease wiped out more than two-thirds of the inventory increase which had been built up prior to last year. Detailed figures by individual railroads are given in an article in this issue.

"CHEAP" TRANSPORT FOR CORPS.: A waterway witness at the hearing on S. 2009 this week was challenged by Senator Wheeler to cite a single instance wherein use of water transportation by oil companies had reduced the price of gasoline to Northwest consumers by as much as one-tenth of a cent. The witness could cite no such instance. The senator then asked him to show how transportation of steel by water had given them a saving of as much as one-tenth of a cent per pound. The witness tried to answer that

one, but he had no better luck on it either. Senator Wheeler concluded: Steel, cement—"all these people"—do not pass the "savings" on to the consumer when they use these subsidized rivers and barge lines.

FARMER FELTUS: One H. A. Feltus of Minneapolis, claiming to represent 600,000 farmers, was taken over the jumps by Senator Wheeler when he appeared in opposition to the waterway provisions of S. 2009 (the Wheeler-Truman "key bill") this week. The Senator finally elicited from the witness that he is not getting his money from the farmers but from some waterway propaganda outfits and from the Minneapolis city council. Both Senators Wheeler and Reed deplored the practice of propagandists who secure endorsement of their activities by groups who hear only their one-sided story.

PROFITABLE PASSENGER TRAINS: The streamliners are not merely diverting traffic from other trains, but are attracting passengers who, except for these superior services, would have used other forms of transport. This fact is disclosed in an editorial herein, which points out that questionnaires answered by passengers show that at least 20 per cent of them were attracted to the railroads by the luxurious, high-speed services. In a little over three years the Hiawatha had net earnings of more than three times the cost of the cars and locomotives which form its consist.

1c PER TON-MILE TRUCKS: Cement moving by truck for 700 miles at less than 1 cent per ton-mile is an astonishing instance cited in the "What Will the Traffic Bear?" article this week. How do they do it? They make so much money on the fancy rates on outbound tonnage that they can afford to return with a load which will buy them a couple of gallons of gas. Some rates far above truck operating costs, not only invite the trucks to divert such traffic away from the railroads, but they also give the trucks a cut of the low-rated business too.

DITCH DIGGERS' PAL: If anybody thinks there can be any curtailment of the ruinous duplication of transport plant in this country without lodging authority over waterway projects in some impartial board, just let him turn to the news pages herein and read the statement of Chairman Mansfield of the House Committee on Rivers and Harbors. "A large number of excellent projects," says Chairman Mansfield, await only the necessary appropriations—despite the obvious fact that America is even now groaning under the burden of a transport plant too big to bear. Traffic on the inland waterways is 90 per cent by private carriers who would not be touched by I. C. C. regulation. The mere regulation of 10 per cent of the services on the waterways while multiplication of facilities goes unchecked, cannot possibly get at the bottom of the waterways competitive situation.

AGREED RATES POPULAR: 850 shippers in Great Britain at the end of 1938 had contracts with the railways under which they sent all their traffic by rail at a flat rate of so much per package or per ton. A news article herein relates how this rate device is growing in popularity—and how it is helping the railways to solve their competitive difficulties.

REORGANIZATION COURT: Objection to the proposed reorganization court is analyzed in the leading editorial herein, and is ascribed to the fear that some such individuals as Amlie, desirous of putting an end to capitalism, would be placed on its bench. The editorial points out that the only legislation which will help the railroads is that which will increase their net earnings. That's where the railroad problem lies—and legislative measures to any other purpose are, at best, merely window dressing. At worst (that is, if they would affect net earnings adversely), they can only make a desperate illness fatal.

INSULATION ON B. & O.: The Baltimore & Ohio now has 150 structures provided with thermal insulation—particularly to curtail roof condensation and separate roof decks from their top coats, but also to conserve heat. Its progress in this direction is outlined in an illustrated article herein.

SO LONG TOM: Thomas M. Amlie has withdrawn his name from appointment to the I. C. C. He was kept out because he admitted his partisanship for government ownership of the railroads so that they may not operate for private gain (as if government ownership were required to bring that about). Meantime, in the excitement over Amlie, little has been said in opposition to the other pending Commission appointee—J. Hayden Alldredge of the T. V. A. Amlie drew all the gun-fire because he admitted his government ownership goal. Alldredge, on the other hand, is headed toward the same objective by his partisanship for waterways. Yet the effective parallel between his views and Amlie's seems to leave the Anti-Socialists cold.

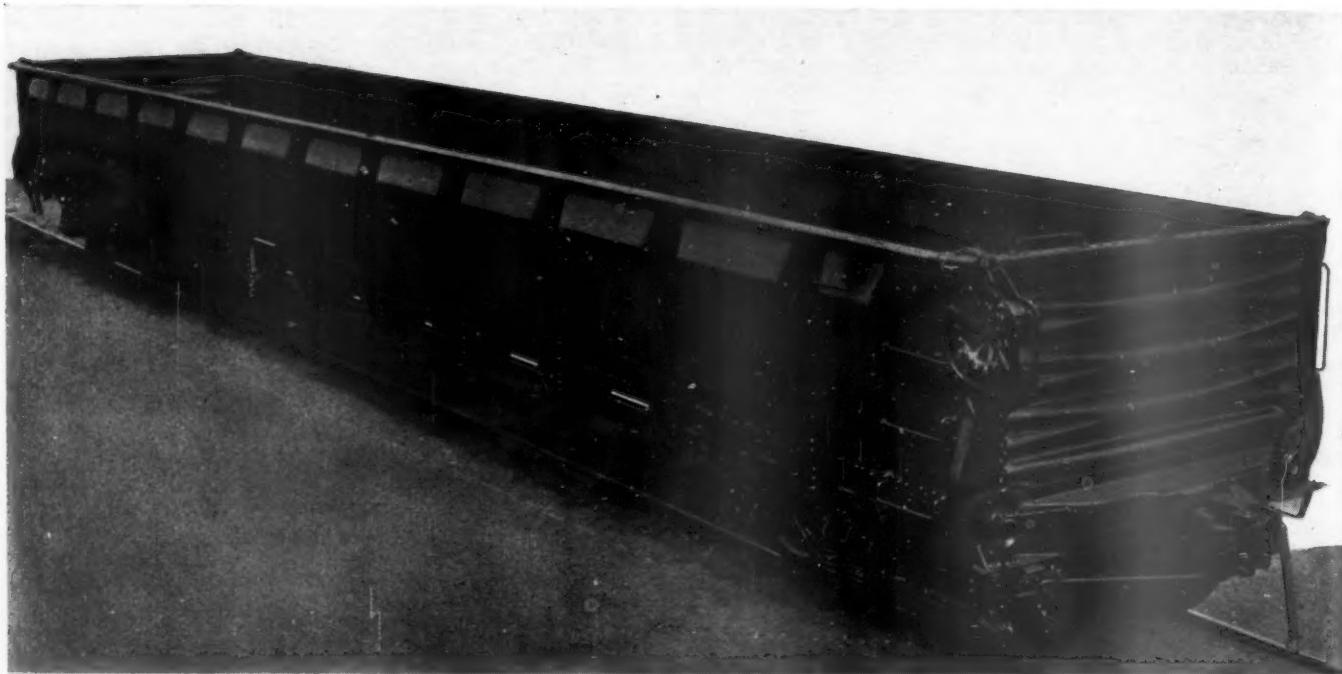
TOO MANY BREAK-IN-2's: Too many trains are parting for this day of long trains and high speeds—so Director Patterson of the Bureau of Safety contends in a paper published herein. These break-in-two's are particularly dangerous on multiple tracks, where they may put derailed cars afoul of adjacent tracks. Draft gear design and maintenance, he urges, need particular attention if this type of accident is to be curtailed; and he gives the details of some types of slack maintenance which may lead to casualties. He also draws attention to the fact that the A. A. R. is not exercising its authority over the introduction of new, light-weight passenger cars the way it does with freight equipment. The roads are likewise far behind schedule in the installation of AB brakes.

PANELED SIDES

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and
protect stakes from the load*



SIDE STAKE CONSTRUCTION



STANDARD RAILWAY EQUIPMENT MFG. COMPANY

CHICAGO

The Week at a Glance

COMMODITIES CLAUSE: Railroads are prevented by this clause from engaging in manufacturing or mining because, over 30 years ago, Congress discovered that a producer who owned his own transportation (or vice versa) had an unfair competitive advantage over the producer who could not afford to provide his own transportation facilities. But the evil of such unequal competition has now arisen again with large corporations operating fleets of barges and trucks. So, proposals are popping up all around to enlarge the commodities clause, to make its provisions apply equally to all agencies of transportation. The leading editorial herein discusses this development and concludes that, to legislate wisely, we need more facts than are at present available.

PRIVATE CARRIER PROBE?: A suspicion is growing and spreading that private carriers—corporations transporting their own products in their own barges or trucks—may have to be regulated, before the present chaotic transportation situation can be cleared up. The I. C. C. (by request) presented its views on this subject to Chairman Lea of the House Committee on Interstate Commerce—which were, in essence, that research needs to be done in this field before the need for and course of action can be determined.

STRAW IN THE WIND: Senator Gillette of Iowa and the redoubtable Senator Borah of Idaho have jointly introduced a bill which would divorce pipe lines from oil-company ownership.

PULLMAN PUBLICIZES: Pullman is offering 550 prizes for names for its new "roomette" cars as part of an elaborate advertising program, details of which are given elsewhere herein.

RAILROADS AT S. F.: The diverse and ingenious displays of the railroads, the Pullman Company and the Express Agency at the Golden Gate Fair are described in an illustrated article herein.

TRAIN STOP COST \$2: Several years ago the Illinois Central made tests which led to the discovery that eliminating a stop of an 80-car freight train saved \$1.45 and 9 minutes of time. The Santa Fe estimated the saving at \$2. An editorial herein discusses similar tests made by the signaling economics committee which places the cost of a stop at \$2.08 in fuel and water alone.

ALLDREDGE OKAYED: In sorrow the President has withdrawn the name of Tom Amlie for nomination to the I. C. C., while the Senate subcommittee, who could not see Amlie for sour apples, has put its "*nihil obstat*" on J. H. Alldredge, the inland waterways fan. Moral: If you want to wreck the railroads and bring about government ownership, don't admit that objective, but let your economic heterodoxy take the form of piling up subsidies for railway rivals. The effect of your policies on private ownership of railroads would

be the same as outright government ownership advocacy, but nobody will denounce you as a radical, nor bar you from a government job.

I. C. C. NOMINEES: With Amlie out as an I. C. commissioner and Lee and Alldredge as good as in—speculation turns as to who the remaining new member may be. Former Minnesota Governor Benson has been mentioned, while the Railway Labor Executives Association has sent the President five names from which they hope he will make his selection. The five are J. G. Luhrs (dispatchers' head); H. A. Bacus (researcher for the clerks); L. E. Keller (researcher for the maintenance employees); Homer King (assistant director of the I. C. C. Bureau of Service); and W. J. Patterson (director of the I. C. C. Safety Bureau).

TOP SPEED HOW SOON?: Tests the A. A. R. has been running to determine the characteristics needed in locomotives to haul 1000 tons at 100 m.p.h. have drawn attention to the time consumed in accelerating to 100 m.p.h. In one test it required 7 min. to boost speed from 80 to 100 m.p.h. despite a slight descending grade. If the track had been level this acceleration would have consumed over 16 minutes. Reducing the weight of the train 20 per cent steps up the rate of acceleration to 100 m.p.h. about 35 per cent. These and other equally interesting and significant conclusions are reported in an article herein.

AN AESTHETIC CROSSING: Not only functionally effective, but pleasing architecturally, is the Wabash grade separation project at Toledo, described and illustrated herein. But not all the interest lies in the architecture—it was an interesting construction job besides.

ACCIDENTS OFF: In January 283 persons were killed in all types of railway accidents (as compared with 341 a year ago)—and injuries totaled 2,362 (2,543 last year).

"MINOR" MECH. MEETING: The specialized associations in the mechanical department (fuel and traveling engineers, car department officers, general foremen and master boiler makers) will meet in Chicago the third week in October.

FORUM AT LINCOLN: Experts on all phases of transportation went to Lincoln last Friday and laid their views before a meeting at the university (reported in the news pages herein). Among things the experts said—Railroad mileage will continue to be cut unless railroads are given truck operating rights in their territories . . . Payments to government for special benefits (such as truck "taxes") are not genuine taxation . . . Railroad rates should be remade to recognize the new "ceiling" in the ability of industries to provide their own transport . . . Railroad difficulties can be solved by one means only—larger net revenues.

DEFENDS HIGH FARES: The New York Central has issued a statement pointing out that passenger earnings of the Eastern railroads (fare 2.5 cents) were down only 8 per cent under the preceding year in the six months ended February 1, whereas the decline in the West was 9.4 per cent and in the South 15.6 per cent (with fares ranging from $\frac{1}{2}$ cent to 1 cent under those in the East).

HIGH SPEED TRUCKS: We don't mean the kind that take business away from the railroads, but the kind that go under freight cars. The A. A. R. has appropriated \$45,000 to finance a series of tests to determine improvements in design which will better fit these "bogies" for high-speed service. It is hoped that a safer truck will emerge from this study—and one which will reduce maintenance expenses, both to equipment and to roadbed.

BETTER L. C. L. SERVICE: Improving l.c.l. service on the L. & N. was not an easy problem because of lack of sufficient tonnage to run exclusive fast merchandise trains. But an 11-point program was set up, taking up all the slack in schedules and terminal handling that could be eliminated, and the results were a comprehensive acceleration. Methods and achievements are reviewed in an article in this issue.

NURSE OR COP?: In questioning Commissioner Eastman who was testifying on S. 2009 (to revise the Interstate Commerce Act in accord with some of the recommendations of the Committee-of-Six), Senator Wheeler paid his respects to the kind of regulation shipping gets from the Maritime Commission—promoting, lending, operating, subsidizing—functions which the Senator says are "just inconsistent" with regulation. Amen, Senator—but why stop with the Maritime Commission? There are other governmental agencies besides that one which are playing the role of fond mama to pampered transportation progeny.

"CARAVAN" TAX VALID: The Supreme Court has upheld a California law levying a tax of \$7.50 on every automobile "caravanned" in that state. . . . It has reversed a previous stand and now authorizes judicial review of "negative" orders by regulatory bodies (instead of "affirmative") orders only. . . . It has refused to toss out the *Smyth vs. Ames* doctrine of valuation for rate-making purposes.

AGIN' CHANDLER BILL: The Chandler bill, facilitating voluntary reorganizations without recourse to bankruptcy, has passed the House—but it will not find the going so easy in the Senate. Among the bill's probable opponents is Senator Wheeler who has been fortified by a memorandum from New Dealer Adolph Berle (Assistant Secretary of State and noted authority on corporation finance). Berle contends that the bill would permit the piling up of stale claims against a property which it ought not continue to carry.



Replacement saves \$180.35 yearly per car

A conservative estimate indicates that the total saving per year of replacing ten-year-old box cars with new light-weight box cars is \$180.35 per car.*

Light-weight freight equipment is profitable . . . not only from the standpoint of reduced weight, increased tonnage capacity

★ Savings due to light-weight (\$87.62) are based on the Mechanical Advisory Committee's Formula . . . savings due to more tonnage capacity (\$13.98) based on A.A.R. reports . . . savings in maintenance cost (\$69.45) from data of one of the large Class I Railroads . . . miscellaneous repair cost savings (\$9.30) from a study made in 1937.

and low maintenance cost, but also from the standpoint of availability. Light-weight welded box cars, as Built by Pullman, are free from costly repairs . . . they spend more days in revenue-producing service.

Since introducing the first light-weight box car four years ago, Pullman-Standard has made further improvements in design, and shops have been completely equipped with the most modern welding methods. Pullman-built light-weight freight cars produce definite and recognized savings. They are an investment in good railroading.

PULLMAN-STANDARD CAR MANUFACTURING COMPANY

The Week at a Glance

ALLDREDGE BARGES IN: The strategy of naming Alldredge and Amlie together to the I. C. C. has been successful—the theoretical socialist Amlie drawing so much gun-fire that no ammunition or energy was left for the practicing socialist Alldredge. So far he is on the Commission bench, fitted for his duties by his efforts to put the railroads out of business with government waterways.

BUSINESS HYPOCRITES: Big Business, in promoting friendly public relations, has got a much tougher assignment than that of merely "keeping the facts of business before the public"—which is all some of its spokesmen think it has to do in order to make friends and influence people. Rather, if it wants public respect, it has got to undergo a soul-searching reform—repudiating government favors as zealously as it opposes government restrictions. Such is the theme of the leading editorial herein—which shows specifically wherein business itself is contemptuously flouting the very principles of sound economic policy which it is preaching so lustily to the general public.

HOWDY, GENERAL: A four-car motor train with a 1000 hp. Diesel-electric plant (and an auxiliary lighting and air-conditioning Diesel-electric unit on each passenger carrying car) becomes the Q's ninth Zephyr. Lighting is entirely by fluorescent lamps and all axles, except those of the power truck, are fitted with disc brakes. The train goes into St. Louis-Kansas City daily round-trip service on April 30 as the "General Pershing." Pictures and descriptive details in this issue.

TELEPHONE PROGRESS: direct telephonic contact at all times between the dispatcher and all engine crews (a system being installed on the Birmingham Southern), and the use of radio by the Southern Pacific as an emergency communication system and for protection against snowshed fires, are two of the interesting topics covered in the report herein of the meeting at St. Louis of the telegraph and telephone officers.

BIG TRUCK TRAFFIC BOOST: Truck traffic in March was 23.4% above a year ago, according to the figures of the Trucking Associations. For the four weeks in March on which railroad carloadings were reported, the total was up only 8 per cent above last year.

TRANSPORT NEEDS AN UMPIRE: Transport conditions are chaotic because a general free-for-all is taking place in it, with no holds barred. Such is the view of Chairman Lea (not in his words though). In an address to the N. Y. R. R. Club, reported herein, he condemns the short-sighted selfishness which is opposing regulation of water carriers. He draws attention to the fact that a cat-and-dog-fight similar to that now going on menaced transport back in the '70's and '80's, and that regulation of all the trans-

port then in sight ended that condition. A similar remedy ought to work a similar cure today. Building waterways, he added, is a mighty expensive method to get reasonable rates—regulation should provide them.

TO DOUBLE AUTO USE: An automobile manufacturer has an article in the current Saturday Evening Post in which he seeks public backing to help the automobile industry double its business. What he wants is to tear the cities apart to make wide thoroughfares and parking space—because it's in the city that the auto is not now getting its maximum use, and which is looked to as the best place to expand the automobile market. The author of the article also advocates an extra lane for trucks on hills, but he doesn't say whether the truck operators want to pay for it. These highway planners talk exactly like a bunch of social workers—always about "needs" but never about who is going to foot the bill. Of course, the owners of real estate have played the suckers so far for most of our highway "needs," and maybe they can be cajoled in continuing to do so.

CANADA'S ROYAL TRAIN: Fit for a king (and a queen too) is the royal train now being put in readiness at Point St. Charles for Canada's monarchs for use on their forthcoming tour. Details given in the news pages herein disclose that the train will have six cars, decorated in royal blue and displaying the royal coat-of-arms. Picked crews are now being named to man the train.

AN ENJOYABLE SLUMP: The best all-round safety record in 50 years is the performance claimed for the railroads in 1938 by President Pelley of the A. A. R. Train accidents, in proportion to train-miles, were at the lowest total on record. In proportion to man-hours, accidents to employees were down over 13% from 1937 and over 31% from 1929. Here's one kind of railroad statistics we can see declining without getting blue. May they continue to sag.

VALE DR. LEISERSON: The daily papers (at least, those this page has seen) seem so delighted at the appointment of Dr. Leiserson to the N. L. R. B. that we wouldn't want to say anything to destroy their optimism. We hope the good doctor will promote peace in industry in general, and that the kind of peace he promotes will not be of the Munich variety, where one side does all the getting and the other does all the giving.

CHANDLER BILL CHANCES: Despite earlier reports that the Chandler Bill to facilitate wringer operations on the railroads without formal bankruptcy would have tough going in the Senate, it now appears that its chances are pretty good. Senator Wheeler has indicated that he will not oppose the measure if its life is limited to a year.

WHO PAYS FOR CROSSINGS?: A grade crossing elimination benefits a railroad, on the average, to the extent of less than 10 per cent of its total cost. The recent constitutional amendment in New York which restricts railroad expenditure on such projects to the actual railroad benefits (and never more than 15 per cent of the total) is attracting attention in other jurisdictions. An editorial herein reviews the progress which is being made to take the unjust burden crossing off the railroads—a movement which, incidentally, is the only way the public can ever hope to get rid of grade crossings on a large scale. How about your state law on this subject?

REDUCING PIER WEIGHT: It isn't only in cars that light-weight steels play a part in railroad modernization. An article herein relates how improved steels have been used in new side-wall loading machines on a C. & O. coal pier at Newport News—cutting down the load imposed on the pier 20% below what it would have been, had carbon steels been used.

SO LONG, MAC: The staffs of the locomotive inspection, service and safety bureaus of the I. C. C. and other friends gave a farewell dinner this week to Commissioner McManamy, the real railroader on the commission, who has been succeeded by J. H. Alldredge. Commissioners Meyer and McManamy have both been tendered farewell dinners by their associates, although a successor to the former has not been named yet.

ARE DERAILS DESIRABLE?: Is causing a certain wreck a sensible method of avoiding one which is only potential? The I. C. C. decision authorizing the N. Y. C. to remove derails at the memorable crossing at Porter, Ind., is reviewed in a short article herein.

LEGISLATIVE OUTLOOK: Chairmen Wheeler and Lea both expect to have transport bills (revised in the light of hearings on S. 2009 and H. R. 2531 and H. R. 4862) ready to report to their full committees within the next few days.

AN "AGREED" CHARGE: Canada's experiment with "agreed" charges—which have proved so successful in Britain as a device enabling railways to meet competition—begins officially on May 1 when the first tariff of this character becomes effective. The shipper binds himself to give all his traffic covered by the tariff to the railways, and lays himself open to heavy penalties if he uses other forms of transportation.

LAME DUCK MEDIATOR: David Lewis, New Dealer who was defeated last fall in the Maryland senatorial race, will be named to the National Mediation Board to take the place of Dr. Leiserson, who has been called to a tougher job on the N. L. R. B.



RAPID DECELERATION

... a necessity
with faster schedules

Simplex Unit Cylinder Clasp Brakes play an important part in the operation of modern high-speed trains, such as the "City of Los Angeles" and the "City of San Francisco". They have made possible more rapid deceleration... a factor of vital importance in maintaining faster schedules.

Simplex Unit Cylinder Clasp Brakes not only effect quick stopping... they insure passenger comfort by their smooth, quiet operation... they promote safety by their dependable performance.

Simplex Clasp Brakes are a necessity on modern high-speed trains.

**SIMPLEX
UNIT CYLINDER
CLASP BRAKES**

are precision-built... for dependable performance.

AMERICAN STEEL FOUNDRIES

The Week at a Glance

LEGISLATIVE PROSPECTS: What kind of legislation affecting the railroads do you think Congress may adopt at this session—and how much good do you think it will do? In the leading editorial herein we list the various legislative proposals and our guess as to the chances each may have of adoption. Our conclusion is that organized railway labor is showing itself less potent as a legislative factor than are business interests antagonistic to railway welfare; and that the railroads are not likely to get legislation which will help them even one-fifth as much as would have the wage reduction they sought last year.

PUBLICITY BUDGET UP 3%: The A. A. R. has okayed a budget for the next year for its advertising program (including the expenses of its public relations department). The amount authorized to be spent is \$670,000—an increase of \$20,000 over the outlay for the past year.

FLORIDA DITCH FAVORED: The Florida interests, who financed a junket of Congressmen to their state to sell them on their proposed ship canal, began to cash in on their outlay this week, when the House Rivers Committee okayed the Florida ditch. Congressman Culkin of New York—the sweetheart of the waterways—refused to go along with the report, not because he doesn't favor this (or any) canal but, staunch G. O. P'er that he is, he wants the budget balanced first.

EARNINGS OUTLOOK DIPS: At the beginning of 1939, it looked as if the railroads ought to earn better than 600 million dollars of net railway operating income this year—and we said so at the time. But, since then, business has been easing off from the hopeful start it made; and, unless the carriers do better in the last three quarters of the year than they did in the first quarter, they will not even earn 500 millions of net railway operating income, which won't be enough to cover fixed charges. By contrast with net earnings—taxes are way up thar, actually exceeding the money available for both stock and bondholders.

FULL OF IDEAS: In a little over a month, Illinois Central employees have turned in 2,610 suggestions for improvements in service and efficiency—and of that number 45 have already been adopted and \$432 in cash awards paid out to the idea men. The suggestions are passed by a board on which the labor organizations are represented, and without the names of the authors being known.

MORE C. P. R. 4-6-4's: The latest additions to the Canadian Pacific's fleet of streamlined passenger power are described in an illustrated article herein.

WHISKERS IN OMAHA: Greater love hath no man for a railroad than that which will induce him to cultivate a beaver in its honor. And yet that is exactly what thousands of Omaha males did in celebra-

tion last week of the Union Pacific's "Golden Spike Days." And 40,000 of the feminine faction donned crinolines to accompany the beaver chins and hats, fancy waistcoats and swallow-tails of the gents. Read all about it, folks, in the illustrated article which you'll find a half-dozen pages to the right of here.

LIGHT (& HEAT) ON S. 1869: Some heated testimony developed at the hearings on the Wheeler bill to set-up a reorganization court—and relishers of such fare are referred to the account which is published on another page herein. Some of the hotter moments came when the name of Federal Judge Wilkerson was brought into the discussion, his lordship appearing to have some very warm friends and some equally warm critics.

FAIR FARE: In our next issue we are going to publish an illustrated article describing the Long Island's station at the New York fair. Thereafter, in each issue for 6 consecutive weeks, we shall publish an illustrated feature article dealing with some other phase of the railroad participation in the exhibition—so all our customers will know in advance what to look for. [And, incidentally, the Long Island R. R. is not only by far the quickest route from the city to the fair, but saves you a lot of walking at the other end.]

LAY-OFF INSURANCE: The Railroad Unemployment Insurance Act goes into effect on July 1—and will be administered by 12 regional officers, their locations being given in the news pages herein.

LOS ANGELES STATION: Pictures and descriptive details of the beautiful new and architecturally appropriate Union Station at Los Angeles appear elsewhere in this issue.

1-CENT FARES ON L. & N.: While some of the Eastern roads are congratulating themselves that their fare boost to 2½ cents is a success, the L. & N. is feeling much the same way about having dropped its rate to a lowly cent on one of its lines. So encouraging has been the experience thus far, that the road is extending the trial period of this bargain rate on this line and is going to give it a trial on several other lines. All of which may, perhaps, suggest that a uniform fare is not the most remunerative fare—not even for a whole railroad, let alone for an entire territory. Electric power rates vary widely from area to area, even in the same state—with ample justification for the variations, both from "what the traffic will bear" and cost standpoints. Do not equally valid reasons exist for fare variations?

NO STOKER APPEAL: The railroads have decided to take their licking on the I. C. C. order requiring stokers on virtually all classes of motive power except hand-cars—and will not appeal to the Supreme Court the finding of the three-judge federal court which upheld the I. C. C.

BONDHOLDERS WIN: Under the old bankruptcy practice, if a company defaulted on its bonds, the bondholders could force a foreclosure sale of the property to satisfy their claims. Holders of junior securities in bankrupt companies have contended that the present bankruptcy law gives them the right to hold up reorganizations until their claims get satisfactory recognition. The I. C. C. has now taken sides with the bondholders and, in a revision of a reorganization plan for the Spokane International, has told the senior security holders to go ahead, if they wish, and have the court sell the property under foreclosure.

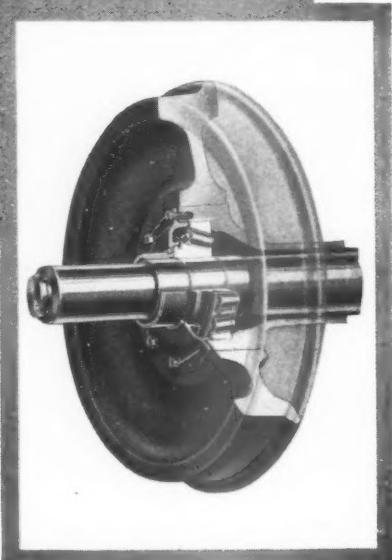
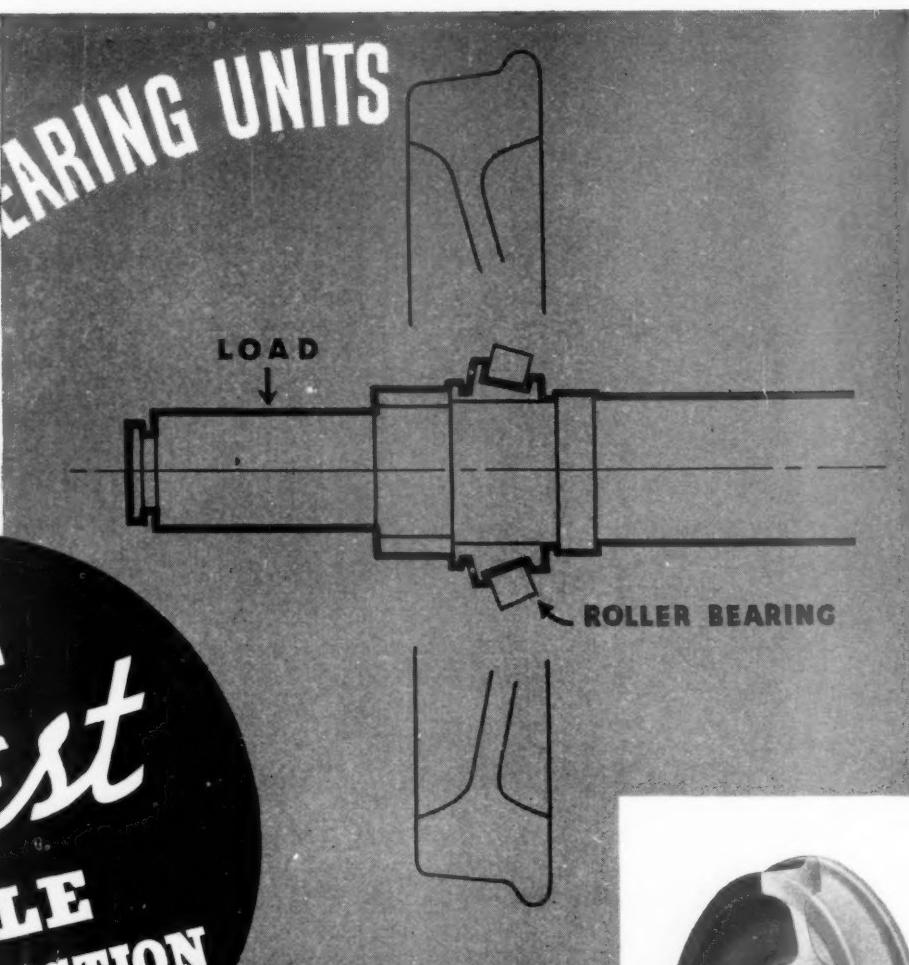
MERGER PAY IN CANADA: A bill to protect employees who may lose their jobs because of "co-ordination" between the C. N. R. and the C. P. R. has been introduced in the Canadian Senate. Drawn up along the lines of the so-called "Washington Agreement" in effect on the American roads, the bill embodies some interesting points of difference which we enumerate in the news pages herein.

CHAMBER MUSIC: Not the shortsighted selfishness of business men, but their need of education in the fundamentals of transportation is the reason why the U. S. Commerce Chambers Transportation Conference fizzled. Such was the excuse offered at the Chamber meeting in Washington this week by Banker David Howie of Boston. We must delay comprehensive action until more "spade work" can be done, in the opinion of this oracle. Leslie Craven, in effect, advised his hearers to be responsible adults rather than a crowd of selfish adolescents—and to deal with transportation in a manner fitting intellectual and moral maturity.

WALTER'S BUSY WEEK: Luther Walter told the Traffic Club in New York on Tuesday of this week that the railway labor organizations were backing the Wheeler bill to establish a reorganization court with the idea of wringing out the security holders so there would be more money left for labor. On Wednesday he appeared as a witness before Senator Wheeler in opposition to this bill, and the Montanan took out after him—assailing his statement before the Traffic Club as "untrue, grossly misleading and unfair." Mr. Walter also blamed the 1937 wage increase on the P. R. R. and the U. P. and said "the A. A. R. is run by rich roads for rich roads." He paid his respects, both in N. Y. and D. C., to the railroad adjustment board.

BARKLEY WANTS ACTION: Senate Majority Leader Barkley this week spoke against early adjournment of the present session of Congress, citing transportation legislation as a duty which should not be given the run-around this year. The revised addition to the Wheeler-Truman bill (S. 2009) went to the printer Thursday and was expected to be introduced shortly.

A-S-F ROLLER BEARING UNITS



The vertical load is applied to the inner axle member of an A. S. F. Roller Bearing Unit in exactly the same way as to the friction bearing axle.

The roller bearing race and shrink collar are attached to this axle at the same location as the wheel to the friction bearing axle. No new principles of axle design are involved.

The axle carries only the vertical load. Also, it does not revolve, hence is not subject to stress reversal with each revolution of the wheel.

Service has proved its safety.

*Roller Bearings used in A.S.F.
Units are manufactured by
SKF Industries*



AMERICAN STEEL FOUNDRIES

The Week at a Glance

R. R. SALES RATING 78%: Where railroad travel salesmanship falls down is in the dull story the merchandisers tell of the goods they have to sell. This was disclosed at a railroad sales meeting in Chicago this week where a merchandising analyst gave the findings of a survey he made of railroad selling efficiency in 200 personal and 140 telephone calls. Airline and filling station employees are way yonder ahead of the railroads in their skill at relieving the customer painlessly of his shekels, the survey showed—the railroads getting a low rating also in helpfulness to prospects in the way of suggestions, and in their enthusiasm for their wares. The roads ranked high in courtesy though, and in office appearance.

POWERFUL R. R. MANAGEMENTS: The railroads exaggerate their complaint that managements have no power left, Commissioner Caskie said in a New York speech this week. They still have the power to reduce rates, he went on to explain. One other power he neglected to mention—that of passing dividends and calling on the courts to take over.

BANKRUPT BILL: Plenty of kicks were registered against Senator Wheeler's reorganization bill (S. 1869) at the hearings this week. The idea of scaling down capitalization to the basis of average earnings of the last six years seems to have few if any friends. One of the most pointed jibes was that of Fairman Dick, who said the measure apparently contemplated raising money from investors at 4 or 5 per cent and putting it into railroads which could earn only 1 per cent. There were almost as many different ideas as to the powers of the proposed new reorganization court (if any) as there were witnesses.

PARLIAMENT IS THROUGH: The Canadian railways have got all the help they need from the lawmakers to restore their operations to a profitable level—so it's up to them to start sawing wood. Such, in substance, appears to be the conclusion of the Canadian government—its view being given by Senator Raoul Dandurand (see news pages herein). The Senator's idea is that the "agreed charges" scheme gives the railroads plenty of ammunition for dealing with competition. From the standpoint of operating savings, "co-operative economies" ("co-ordination" is the word usually used south of the border) can save them plenty. So, says the Senator, the railways should "drop their pride" and get busy.

PRESTIGE OR NET THE GOAL? The railroads would be in a sounder position in asking for public support in the way of legislation, if they would first go to work and save all the money they can under the existing set-up. Such was the advice given by Professor W. J. Cunningham at a transport pow-wow conducted by the Savings Bank Association this week. In the opinion of this friendly critic, the prestige of competitive advantage over another railroad means more to many man-

gements than a dollar which they might save for their hungry stockholders.

BARGE LINE STRIKE: All is not beer and skittles for organized transportation labor when Uncle Sam happens to be the controlling stockholder of the company they work for. In the news pages herein, will be found the story of the strike on our Federal Barge Line (yours and mine because our taxes paid for it). The Barge Line officials have been holding out against raising \$80-a-month help to \$130, and the tie-up has been accompanied by some violence.

CHANDLER BILL: The I. C. C. thinks the Chandler bill might be a help in straightening out the affairs of a few roads—but it doesn't want the measure to apply to carriers already in hock to the courts. Such was the gist of the remarks of Commissioner Eastman in his testimony on the bill before the Senate Committee this week.

BERLE NO CHANDLERITE: Adolph Berle, assistant secretary of state, who apparently has a nostalgic interest in the railroad industry as a hang-over from his service with the R. F. C., showed up as a witness at the Chandler bill hearing this week. The gifted Adolph appeared in no official capacity—but merely to pick a few flaws detected by his critical eye. He doesn't mind a helping hand to the B. & O. and the L. V. but he doesn't want the Chandler bill idea to become general practice.

WHY HARRIMAN IS HOPEFUL: There would be only four railroads in the West today—the Northerns, the U. P.-S. P., the Gould roads and the Santa Fe—if politicians hadn't interfered. So Averill Harriman told the savings bankers in New York this week. The result would have been a much smaller capital structure to support and lower transportation charges. Mr. Harriman is hopeful about the railway outlook today, basing his optimism on an increased realization by labor that its prosperity depends upon that of the railroads.

MODERN SIGNALS AT S. F.: An up-to-the-minute signaling system (train-describers, cab signals, train control, NX interlockings) has solved the problem of track capacity on the San Francisco Bay bridge, details appearing in an illustrated article herein.

ASHBURN' TRANSFERRED: The second move by President Roosevelt to shuffle the various federal agencies around would take the Federal Barge Line out of the War Department and put it in the Department of Commerce. The Barge Line is engaged in warfare on private transportation—which is doubtless why it was put in the War Department in the first place; but it can probably do as much damage in the Commerce Department as anywhere else.

PHARASAIC BABBITS: "Awake! Awake! Arise! Arise! The New Deal Reds are coming." Thus bellow the sterling patriots and defenders of the faith in the United States Chamber of Commerce; calling us all from our peaceful tasks to beat back the enemy at the gates. And all the time the transportation-socialists in the Chamber's own midst are waxing in power and esteem in its counsels—and in deference to them the Chamber refuses even to defend the basic principles of private enterprise in transportation. The leading article in this issue is a bill of particulars of the Chamber's behavior. When it comes to Reds, give us a frank one every time—who flies the hammer and sickle and not the stars and stripes.

NO EMPTY TRUCKS: Our investigator who is setting forth the startling facts about the inroads of truck competition in the "What Will the Traffic Bear Series?" gives us some more things to think about this week. How can railroads, having to haul around a high percentage of empties, hold their own against trucks which run loaded both ways?

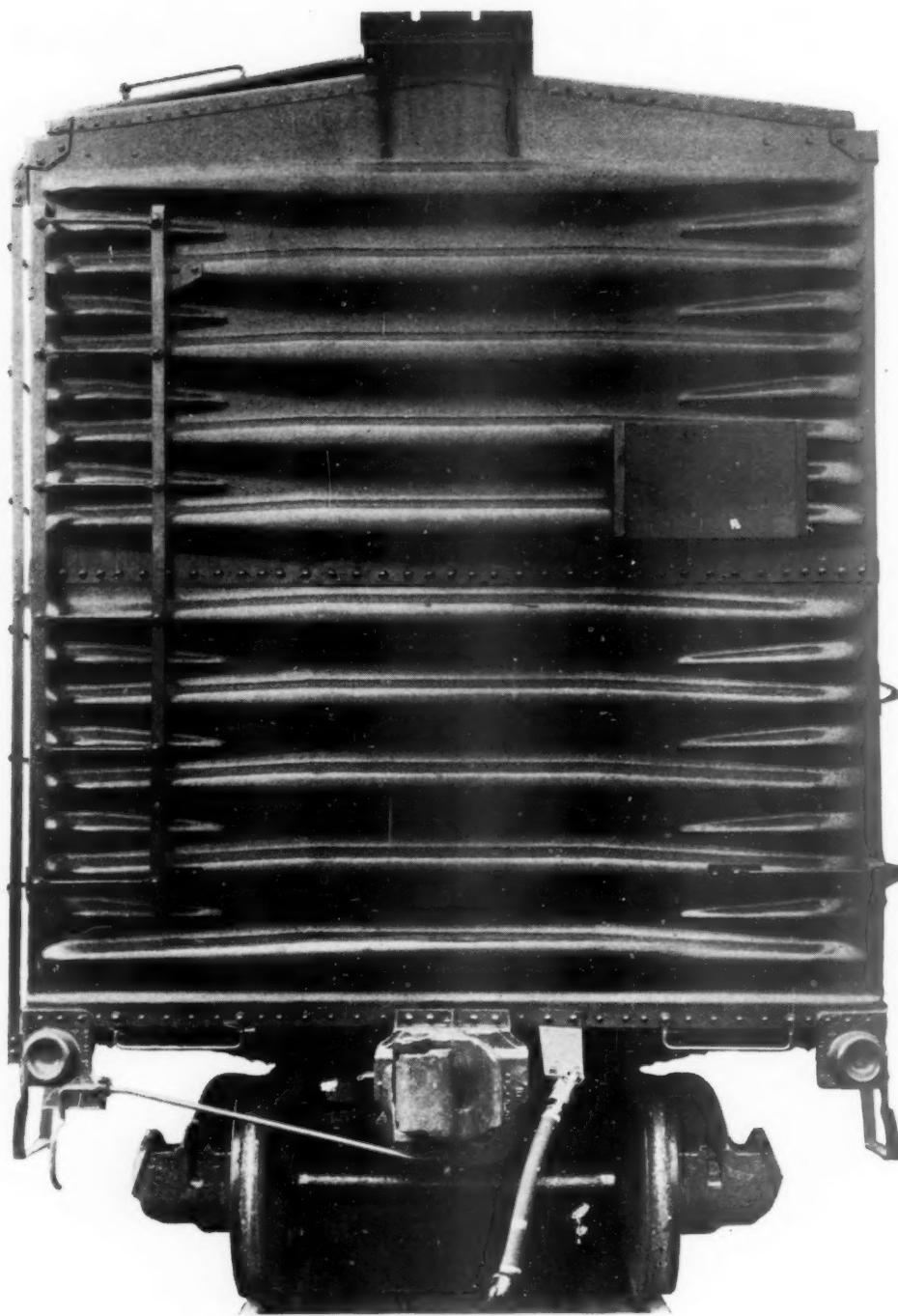
BUSES GET 24% OF FARES: Inter-city buses in the last five months of 1938 handled 41 per cent as many passengers as the railways (excluding commuters), but they took in only about one-third as much revenue. Some illuminating comparisons in addition to these are given in an editorial in this issue.

THE COTTON BELT'S TRUCKS: The truck operating experiences of the St. Louis Southwestern, a veteran at the business, and its mature views as to rail-highway coordination in order to use the "inherent advantages of each mode of transport"—are outlined elsewhere in these pages.

FAIR STATION: A handsome modernistic station with a capacity of 18,000 customers per hour is the treat which the Long Island offers to people who use its facilities to the New York World's Fair. Temporary in construction, like most fair structures, it doesn't look it—and all the details are in an illustrated article a few pages to the right of here.

S. 2009 REPORTED: The Senate's "key" transportation bill was reported to the Upper House this week by the Interstate Commerce Committee. The bill provides for a 3-member research board to report on transport competition, water carrier regulation and "codification" of the I. C. Act—and some other interesting details.

WHAT, NO TELEVISION? Cabooses would have to be equipped with electric lights if a bill introduced by Senator McCarran becomes a law. Plainly a mere piker's measure and entirely inadequate; cabooses ought at the very least to have good radios and air-conditioning, maybe train secretaries too.



THE RESILIENT DREADNAUGHT END
PROVIDES A SPRING LIKE BUFFER
TO CUSHION THE SLIDING LOAD

STANDARD RAILWAY EQUIPMENT MFG. COMPANY

CHICAGO

The Week at a Glance

TRUCK LABOR UNPROTECTED: "Get this overworked truck help out of our sight; they are breaking our heart." Such, in substance, is the I. C. C. finding that its power over hours and working conditions of truck employees is strictly limited to the promotion of safety. In other words, when it comes to regulating motor transport, the Commission is "strict constructionist" of the law. Quite different, however, is the view it takes with regard to railroads. In the Rock Island merger case, it resolved in its own favor the doubts it had of its powers over working conditions. As the Wall Street Journal says, "to the lay mind there is no little difficulty in so distinguishing the two cases as to reconcile the two decisions."

BUYING UP, STILL LOW: Patronage by the railroads of industries which supply their fuel, equipment and materials during the first quarter of the current year are summarized in a short article herein. Total railroad buying in the first quarter was up 34 per cent over a year ago—but it was 40 per cent under the first three months of 1937.

M. & ST. L. SPLIT: The Coverdale & Colpitts proposal for splitting the much-discussed M. & St. L. into two parts—a weaker and a stronger—is summarized, with a map, on the news pages herein.

CHANDLER BILL PLEA: President Daniel Willard of the B. & O. appeared before the Senate Interstate Commerce Committee last week to urge a favorable report on the Chandler Bill (for reorganization without bankruptcy proceedings) in order that his road might be spared the "disgrace" of bankruptcy. Most of the testimony on this bill has been favorable—but practically every witness wants some amendment or other, either to declare him in or out of the bill's provisions in proportion as he thinks the measure would feather or unfeather his particular nest.

WHY CARS IMPROVE: Three years' intensive experimenting by the trial and error method in perfecting a truck for passenger cars—is only one of the practical research projects which K. F. Nystrom describes in a paper published herein, relating something of the busy life which has been the lot of the country's pioneers in car design in recent eventful years. Mr. Nystrom, incidentally, believes that present costs of light-weight passenger cars are "higher than the traffic will bear"—although he quotes a German authority who holds that a cost of 30 per cent more for a light-weight car than for one of conventional construction is economically justified.

BUSINESS GETS TIT FOR TAT: For years self-righteous business men have been knocking the railroads asking why they do not exhibit self-reliance and courage to solve their problems, like other businesses have done. The answer, of course, is that the railroads have been so oppressed by restrictive and discriminatory treatment

that no amount of courage and self-reliance alone could pull them out of the hole. Now, business in general is getting from the New Dealers the same know-nothing admonitions that business has for years been dishing out so lavishly to the railroads. And business in general is showing no more courage or ability in ignoring or evading the oppressive governmental policies which are holding it back than the railroads were able to show. If business in general wants the railroads to recover—then the one and only means to that end is for business to advocate the removal of rank political discrimination against the railroads. If government wants general business to recover, then it must similarly remove the restrictions which it has placed on business. The New Dealers have not said a word in ineffectual scolding of business, or done a thing to cripple it, that business leaders themselves have not been guilty of in dealing with the railroads—as the leading article herein points out.

APRIL GROSS: Early reports (about $\frac{1}{2}$ of the roads heard from) on April gross revenues indicate a take of less than 6 per cent above that of April last year (when we were suffering a "temporary recession"—remember?).

DITCH DOLE DOUBLED: If anybody thinks it is the Reds and the New Dealers who are chiefly responsible for governmental extravagance—just let him turn to the news pages in this issue and take a gander at the rivers and harbors projects that the House Committee on Subsidies to Big Business is recommending. Did you ever hear a Communist on a soapbox demanding that the government build a water-way to connect the Tennessee and the Tombigbee rivers? Did you ever witness a New Deal orator churning up the emotions of the proletariat to demand the deepening of the Connecticut river between Hartford and Holyoke? Well—if the Reds and New Dealers did not exert the political pressure which jacked up rivers and harbors projects from 69 millions to 132 millions—then who did turn the heat on?

MERGER ARGUMENT?: An advocate of regional consolidation asks us to see what our readers think of this: When a new highway—shorter and less costly to drive on—is built between cities A and B, all through truck traffic immediately forsakes longer and costlier routes for the low-cost road. Not so with railroads—a low-level, low-cost line between A and B does not mean that even half the through rail traffic between these cities will follow this route; instead, a whole lot of it will still stick to round-about routes through the hills. So, what we get is highway transportation at its very best, competing with railroading of a far lower degree of average efficiency than it could show. Our merger advocate calls this competition "unfair"—but, he asks, who is responsible for the continuance of such "unfairness." Customers will confer a favor if they will shoot at the idea rather than at us.

AGREED CHARGE No. 2: The Canadian roads have another "agreed charge"—this one with an egg shipper, binding him to ship not less than 80 per cent of his traffic by rail. Further details are given elsewhere in this issue.

NOT SO BEAMISH: Pennsylvania's regulatory stormy petrel, Richard Beamish, read the riot act last week to the shippers who, he says, are making truck rate regulation hideous. Present conditions in rate regulation, he went on to say, are a parallel to those of the days prior to effective railroad rate regulation. Rate-cutting and rebates, forced by big shipping interests, dominate the picture now, he said, just as they did prior to the enactment of the Hepburn Act in 1906.

FAIR "MOUNTAIN": On a "mountain" 28 ft. high and 80 ft. in diameter, the railroad equipment and supply industry has built the world's most elaborate miniature railway (pictures and description in an article in this issue). Every important phase of railroad operation, and supplying materials for railway use, is shown—a rail rolling-mill, iron and coal mines, locomotive and car erecting shops, all varieties of roadway and track construction—in short, all the railway activities the public knows a little about and a lot more that they probably never thought of.

TRAINLOAD RATES: The Interstate Commerce Commission is going to have the opportunity to modernize its ancient prejudice against trainload rates—to meet the realities of present-day barge competition which does business only by the trainload. The Mo. P. and the I. C. have filed a tariff on blackstrap molasses in 1800-ton quantities.

COST OF BAD WATER: The New York Central found that the difference between good and bad boiler water meant a difference of 100 per cent in the cost of boiler repairs, and that in one year the total cost of bad water on the entire system was over \$3,000,000. A paper published herein by the Central's Mechanical Engineer, W. L. Curtiss, reveals in detail the findings of this significant investigation.

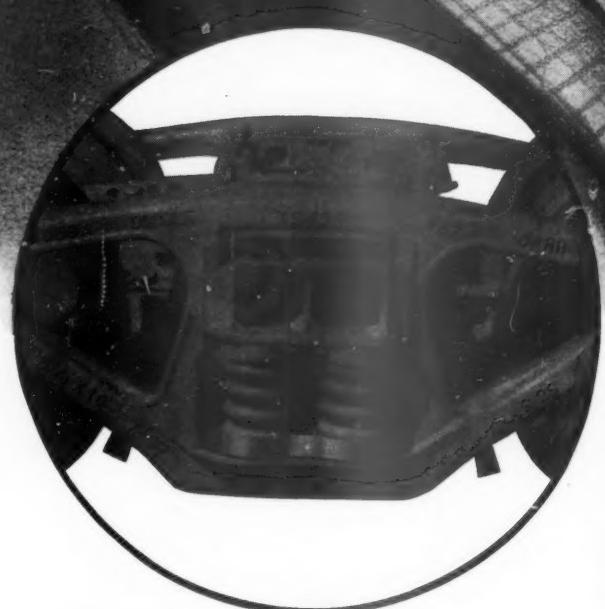
S. 2009 REPORTED: The revised Wheeler-Truman "key" transportation bill has been recommended to the Senate for passage by the Interstate Commerce Committee with the observation that "action must be taken" to preserve "the entire transportation system of this country." President Roosevelt has approved in principle this bill, and the similar one in the House, but without getting down to details. The National Rivers & Harbors Congress (those sturdy defenders of private enterprise at the taxpayers' expense) has announced its opposition to the bill and says that Senators Clark of Missouri and Bailey of North Carolina will oppose it for them.

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Self-Aligning Spring-Plankless
Trucks ... over 47,000 cars*



Self-Aligning Spring-Plankless Trucks
under 47,000 freight cars offer the most
convincing proof of their dependability
and economy.



AMERICAN STEEL FOUNDRIES
SELF-ALIGNING TRUCKS

The Week at a Glance

PRIVATE CARRIERS: The big argument in transportation is going to be—not that between the railroads and their competitors—but between all common carriers (highway and waterway included), on the one hand, and private carriers on the other. Dr. Meyer made this prediction in his address reported herein, and we amplify upon it in our leading editorial. Private transportation is often nothing more than a handy device of Big Business for driving little competitors to the wall. The little fellow can't buy barges or a fleet of trucks—he has to depend on common carrier service. But the fellow who *can* buy barges and trucks thereby enjoys subsidies from the taxpayers—so his transportation expenses are lower than those of the little fellow who depends on the railroads. Our present national transportation policies thus tend to foster Big Business and monopoly and to drive the little fellows out of business. Would the American people countenance this condition if they knew the facts?

F. D. R.'s NAIVE ECONOMICS: There was little in President Roosevelt's speech to the retailers this week to encourage people who hire help to go out and employ a lot more of it. He still seems to think that "purchasing power" can be hocus-pocused out of thin air. He does not see that a man's "purchasing power" is limited to the goods other people are willing to give him in exchange for the things he produces. Try to force an artificially high "purchasing power" in behalf of any group in the community—and the people will cut down its patronage of that group; so the group's *total* "purchasing power" will not be increased, and may even decline. "Purchasing power" is a command over useful goods; hence the only way genuinely to increase it for the people as a whole is to increase the total production of useful goods. These facts are elementary, but they are also vitally important, and it is extremely unfortunate for the American people that their President does not understand them.

F. D. R.'s STRANGE BEDFELLOWS: But the nation has got along pretty well for a century and a half despite politicians who did not know from their elbow about the simple truths of economic existence. The serious aspect of the present situation is that dominant business behavior appears to be just as dumb and demagogic about these matters as the political leaders. President Roosevelt in his speech noticed that business men are partisans of the principal fault of which they accuse him—namely, profligate expenditure of public funds, at least wherever they are to be on the receiving end of such spending.

NOT IN DUTCH: The holders of first terminal and unifying mortgage bonds of the Cotton Belt cannot get their money in the legal tender of the Netherlands, as the mortgage provides, but must accept devalued new deal dollars—according to a decision of the Supreme Court handed

down on Monday. This may be a little tough on the security owners, but it would have been even tougher on the railroad if the court had ruled otherwise because, of course, all the railroad's revenue comes to it in devalued U. S. currency and not in undepreciated Dutch money.

PHONY ECONOMY: Much of the supposed economy of trucks and forwarders is artificial, arising because railroads perform their empty mileage and spare them the expense of handling non-compensatory traffic—such is the contention of this week's installment in the series on "What Will the Traffic Bear?"

FLOODS WON'T CUT POWER: A powerhouse which not only incorporates all the new economies which indefatigable engineers are constantly providing, but which also escape Pittsburgh's floods, is a recent acquisition of the P. & L. E., described in an illustrated article herein. The Monongahela can put on a 50-ft. flood (13 ft. higher than the ground floor of this structure), and it will still keep on grinding out the juice.

Q TRUCKS, BUSES: All about the Burlington's operation of buses over 6,700 route-miles in 12 states and 2,500 route miles of trucks—such is the subject of an article herein on this vigorous developer of rail-highway co-ordination.

CHANDLER BILL O. K.: Senator Wheeler's committee has reported favorably on the Chandler Bill—but with amendments so that it can be of service only to the Baltimore & Ohio and the Lehigh Valley. It has also bestowed its blessing on S. 1869, the Wheeler-Truman reorganization court measure.

BRITISH "SQUARE DEAL": Cable advices from London disclose that the Transport Advisory Council, comprising representatives of all transportation interests, has put its okay on the British railways' claim to a "square deal"—meaning in substance that railway rate regulation is probably going to cease; since Parliament will probably not refuse what unanimous public opinion asks. What a contrast with the attitude of shippers and competitors in this country who insist on freedom for themselves and fetters for the railroads.

FULL CREW FOOLISHNESS: "Full crew" and other "make work" laws and agreements do not really help labor; instead they do it immeasurable harm. Such was the gist of the statement of Commissioner Eastman in a concurring opinion in a Milwaukee abandonment decision this week. If the law or an agreement requires 5 men in a train crew when the traffic to be hauled will pay the wages of only two or three, then the train is pulled off. The "full crew" law thus, instead of "making work" for two or three men, actually causes two or three men to be cut off.

LUCKY S. E. PASSENGERS: The fortunate coach passenger in the Southeast who now rides for 1½ cents a mile (or 40 per cent less than is paid by the passenger north of the Mason & Dixon line) is about to have his bargain augmented. The Southeastern lines are going to sell round-trip tickets at 10 per cent less than the straight fare.

POPET PERFORMANCE: The poppet valve has proved its value in service in both England and France (as is related in an article in this issue). Such difficulties as have been encountered with it have not been fundamental, but have arisen in the development of satisfactory operating mechanisms. In an English instance, the valve increased engine mileage between shoppings by 28 per cent, cut fuel consumption 14 per cent and reduced lubricant consumption 20 per cent.

PROGRESS OF S.2009: By the time this page reaches your eye we hope that S.2009 may be safely past the Senate. At the time of this writing (Thursday morning), the measure seemingly has only one hurdle to surmount before coming to a vote—namely the threat of Senator Bailey to get the bill committed to the Commerce Committee (a euphemism for Water Lines Committee). This Wheeler-Truman "key" measure, however, has lost some of its tail feathers in the Senate debate—notably the provisions which would authorize the I. C. C. to require the pooling of revenues from general rate increases, and authorizing the I. C. C. to require the pooling of I. c. l. The through routes provision, however, is still in the bill as we write.

FORWARDER FOES: One interesting sidelight in the debate on S.2009 was that it brought out a point on which Senators as far apart politically as Norris (Neb.), Clark (Mo.) and Reed (Kan.) could agree—to wit, in their opinion of forwarders. Messrs. Clark and Norris went after the alleged discrimination practiced by these middlemen and Clyde Reed agreed, calling such operators "a parasite on railroad transportation." All the same—the Senate did not accept Clyde Reed's amendment which, by giving I. c. l. pooling powers to the I. C. C., would have threatened the existence of the pick-and-choose consolidators.

WHEELER ON WATERWAYS: The truth about the colossal doles to Big Business from toll-free waterways got a good airing in the Senate debate (all honor to Senator Wheeler!) "We stood on the floor of the Senate" he said, "and argued that deepening and widening the channel of the Mississippi river and the Ohio river would render a great service to the consuming public." Instead, he continued, the savings in transportation charges have not reached the public at all—Big Business has stuck them into its jeans. There ought to be tolls, he concluded, so the government may get some of its money back.

WEIGHTY WORDS

**On the Subject of
Summer Comfort**

THIS summer, the light-weight streamlined trains that will transport Fair-bound passengers are sure to leave with them one outstanding impression — that of COMFORT! Air-conditioning systems will function effectively to produce refreshing coolness; at night, modern car-lighting will add to the pleasures of the traveling public.

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The Week at a Glance

MEASLY EARNINGS IN APRIL: The railroads earned 15 millions of net railway operating income in April, and in the first four months they earned 101 millions. This is at an annual rate of 1.55 per cent on the investment—which would mean only about 400 millions in earnings for the entire year, unless the showing so far this year changes for the better. At the beginning of the year, based on earnings of November and December, it looked to us as if the railroads ought to earn better than 600 millions this year.

WHY TRUCKERS LOVE I. C. C.: The truck operators regard I. C. C. regulation so highly that they are suing the Commission to force it to take jurisdiction over hours and working conditions of all truck employees. The I. C. C. has held that the law gives it authority only over truck drivers—and that only in so far as safety considerations can be shown. What the truck operators are seeking, however, is hardly a paradox. They do not want more regulation but less; and if the I. C. C. doesn't have jurisdiction over their employees, then the Fair Labor Standards Act does.

COURT AIDS "MAKE-WORKERS": The "make-work" boys won the first round in the fight the Washington Terminal is giving them, the D. C. district court having held that it has no jurisdiction to review the contract between the unions and the Terminal. The Terminal is trying to get court review of the order of the Adjustment Board, which would force it to employ unneeded help in the movement of trains. The Terminal Company plans to take an appeal.

SENATE WASHES UP: The Senate has finished its work on major railroad legislation which it had on its calendar, having put its O. K. on the "key" bill, S. 2009, the reorganization court bill, S. 1869, and the Chandler bill, H. R. 5407. The last-named, however, is the only bill which has received the House's approval—and the Senate hung amendments on it which will make a conference necessary.

1938 SAFETY RECORD: Railroad officers and employees have got to be on their toes to continue showing improved safety performance over the handsome record they hung up last year. Such was the burden of the message conveyed to delegates at the Safety Section meeting (reported herein) which was held last week in Cincinnati. Train-accidents in proportion to train-miles in 1938 were the lowest of any year on record. *A passenger is 14 times safer on a train than he is on a bus and 32 times safer than he is in a transport airplane*, so A. A. R. Vice-President King pointed out to the conferees.

CROSSING DEATHS DWINDLE: Of 32,000 motor vehicle deaths which occurred in 1938, less than 5 per cent hap-

pened at railroad grade crossings. A locomotive travels 776 thousand miles (31 times around the earth) for each crossing death it causes. In 17 years, motor vehicle registrations have increased 136 per cent, locomotive mileage has declined 26 per cent and crossing fatalities have fallen 16 per cent.

HOW CUT CASUALTIES?: Discussion at the Safety Section meeting reported herein indicates (1) That careful selection and training of employees, with strict enforcement of rules, will curtail train accidents, and (2) That most non-train accidents are preventable—adequate records, discipline and avoiding the employment of misfits will help to improve the record.

JOBS WHEN R. R. QUILTS: A railroad won't even be allowed to quit running until it finds jobs for its employees, if the brotherhoods win a point they have raised with the I. C. C. In the abandonment of a part of the Q. O. & K. C., they want to force the Burlington (which will take over a part of the Q. O. & K. C.) to find jobs for the help which will lose out.

POLITICIANS R. R. FRIENDS: "Politicians," whom your typical Babbitt despises and never ceases to disparage, are nevertheless doing their damnedest to give the railroads at least the beginnings of a square deal by legislation. And where, meantime, are the great leaders of business—as represented by the U. S. Chamber of Commerce? Where do they stand on the policies needed to permit railroads to survive? Well—they seem to prefer the Communism of government transportation at the taxpayers' expense, as is set forth in some detail in the leading article herein.

TRUCK RIVALRY IS NO JOKE: If there is anybody who disagrees with the rate changes being advocated in our series on "What the Traffic Will Bear," we should like to hear from him. So far, all the comment (and there has been plenty) has been favorable. But if everybody favors these changes, then why are no steps being taken in that direction? If the baby has diphtheria and antitoxin will cure him, then why wait forever to give it to him? We suggest a look at the figures on truck loadings, published elsewhere herein, as a topic for contemplation by those who want to "leave well-enough alone." What is being left alone is decidedly *not* well-enough. All the figures we have seen show heavy increases in truck loadings over last year, while rail loadings are only a few per cent up.

TIE "DONT'S": To avoid checking and splitting of crossties, a series of 12 errors to be shunned are listed in the recommendations of a special committee reporting to the Tie Association (whose convention proceedings are summarized in an article herein).

WARN S. & D. MEN: The freight claim department is on the spot, because of alleged improper claim payments—and, unless the railroads can put an end to the situations which have occasioned such criticism, then they are in for further regulation. Such was the note of warning sounded at the Freight Claim Convention in St. Louis last week by A. A. R. Vice-President J. W. King—reported in this issue.

HOUSE PONDERS REVAMP: The House Judiciary Committee has gone into a ponder on its own reorganization court bill which closely parallels the Wheeler-Truman S.1869 which the Senate has approved. Its first witnesses were Commissioner Splawn and Lawyer Max Lowenthal (of Wheeler committee snooping fame).

RAIL MAKING WANED IN '38: The production of steel rails in 1938 touched a five-year low of 623 thousand tons, according to a compilation of the Iron & Steel Institute. The drop was precipitate from 1937, when a five-year high was recorded, with output nearing 1446 thousand tons. The bulk of the tonnage was in sections weighing 100-120 lb. to the yard.

PRIVATE CARRIERS: Although S.2009 got through the Senate without any widening of the commodities clause to forbid corporations from engaging in both production and transportation, nevertheless the practices of some big corporations in this connection got a healthy airing. Senator Shipstead offered an amendment to prohibit shippers from collecting the rail rate at point of destination when their goods had actually moved by another form of transportation. The amendment did not carry—but anyhow, the Senators now all know pretty well who is getting the benefits of "cheap" water transportation. Senator Wheeler agreed to the principle of this amendment but he did not want it riding through on his own bill.

A NOD TO HASTINGS?: The Eastern railroads are putting forward round-trip rates (outlined in the news pages herein) which would have the effect of collecting very low per-mile charges from long-haul passengers, with higher per-mile levies upon short-haul customers. A mean-spirited acquaintance of this page recalls that discrimination against the short-haul customer was the principal objection raised by the railroads to the so-called Hastings "postalization" plan—against which it was urged that "the cost of carrying [passengers] varies in rather close relation to the length of the journey." Our critic points out also that automobile and bus competition with the railroads is keenest on the relatively short hauls—but probably we can put this fellow's carping down to his narrow selfishness, because he is a frequent short-haul passenger himself.

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A M E R I C A N S T E E L F O U N D R I E S

SIMPLEX...The Long Lived SNUBBER

The Week at a Glance

BRITISH CIVIC MATURITY: The enlightened community consciousness of British business men—in contrast with the sordid particularism of their predominant American contemporaries—is given concrete expression in the unanimous support of British business for the railways' "square deal" program, reviewed editorially herein. Britain has already largely eliminated subsidies to the railways' rivals—as is shown by its fees, much higher than ours for highway use, and the absence of toll-free waterway development. Now British public opinion (*including transport agencies which compete with the railways, as well as shippers and labor*) has agreed upon largely eliminating regulation of railway rates, so that competition in transportation may be on a basis of equal opportunity—and may the best man win. What a contrast between the behavior of these morally responsible Britons and the self-seeking opportunists who dominate the transport policies of organized American business!

5 MONTHS' PURCHASES: The railroads spent 351 million dollars with other industries in the first five months of the current year—which made them 37 per cent better customers than they were in this same period last year. Details, with charts and tables, are given in an article elsewhere herein.

SUSPENDS TRAINLOAD RATE: The I. C. C.'s behavior is scriptural in at least one particular—it lets not its left hand know what its right hand is up to. That is to say, it is reported to be hiring another cost expert to give Cost-Finder Arthur White a hand in stimulating rate-making on a cost basis—while, on the other hand, it has hung a 6-months suspension on trainload rates on New Orleans molasses destined for the Peoria thirst-quenching industry. Cost rates without concessions on trainload lots are, of course, a travesty on the cost principle—but probably the I. C. C. is more concerned right now with preserving the "vigor" of the railroads' water competition than it is with any mere theory of rate-making.

MECHANIZED ACCOUNTS ON R. I.: Accounting by machinery on the Rock Island was recently extended from the road's regular accounting and statistical work to include material pricing—and a comprehensive article herein describes the procedure, with particular emphasis on its application to stores department work.

MORE MEN WORKING: 958 thousand men were working on the railroads in Mid-May—which was almost 6 per cent better than a year ago, but the index number was not so hot (lower than for any month since last September).

GREEKS BRINGING PRESENTS: Railroads who are proceeding with rate innovations aimed at "pick and choose" competition are counseled not to waver in

their purpose by this week's "What Will the Traffic Bear?" installment. Naturally, the "pick and choosers" have got a nice thing in the present set-up and, if they can trade an old rusty knife or something equally worthless, in return for railroad acquiescence to their present indefensible privilege of picking and choosing, that will be smart business for them. These boys are not dumb. But neither are the railroads—hence we don't believe the truckers are going to be able to buy them off with stage money.

WELCOME, YOUR MAJESTIES!: The King and Queen are being entertained in Washington as this issue goes to press—and on another page herein is published some of the railroad side of their history-making tour (which, incidentally, is a 100 per cent railroad project from Buckingham Palace to the Pacific and back again). For those who would like more details of the railroad aspects of the royal journey in the U. S. A. than we are printing—don't blame us for not telling you more. The commissioners in State Department at Washington ordered the railroads to keep strictly q. t. about all the details of this interesting operation.

UTILITIES AND WATERWAYS: The Edison Electric Institute has been meeting in New York this week, and the luxurious precincts of the Waldorf-Astoria have resounded with denunciation of government competition with private enterprise. All quite proper, of course. But, while condemning such government competition at the expense of the electric industry, we didn't notice that the power barons got into much of a lather about government competition where they are on the receiving, rather than the losing, end. Specifically, we heard of no viewing-with-alarm at toll-free waterways which some of the utilities are using to get in their fuel.

ASHBURN REPORTS "NET": We taxpayers are lucky beyond our deserts in having started that Federal Barge Line and particularly in having hired a smart fellow like T. Q. Ashburn to run it for us. If you don't think so, just turn to the news pages herein and read the details of the Barge Line's annual report. This transportation enterprise earned over a million dollars in "net income" last year and it "saved" shippers 31 million dollars in freight rates, which otherwise they might have paid to the wicked railroads. What (we hear the scoffers ask) about interest on the government investment in figuring that "net income"? Just what "saving" to the nation is there in taking 31 million dollars out of the railroads' pockets and putting them into the jeans of the shippers, who may need the money less than the railroads? These questions are embarrassing and unpatriotic, and anyone who would ask them is no true socialist—and you'd better look out or the Old General will put you on k. p.

HIGHWAY PIPE DREAM: "Trucks traveling at 50 to 100 miles per hour over through highways, from coast to coast, may revolutionize the entire freight transportation system of the country." Such is the daydream of "Transport Topics," official organ of the trucking industry, after seeing an artist's World's Fair picturization of America converted into a mere setting for a grandiose system of highways. Could be. But when America taxes itself to support such a highway system as that, the chances are there won't be much freight left for trucks to haul—because the people won't be eating and they won't be wearing clothes and they'll be sleeping in culverts.

JUDGE IN HIS OWN CAUSE: Interstate Commerce Commissioner J. Hayden Alldredge, who as a T. V. A. employee was an outspoken partisan in the Southern rates controversy, had the privilege this week of sitting in judgment on the Commission bench while the Southern governor's rate complaint case was being argued.

WE PEER AT A PAGEANT: Ed Hungerford's brilliant opera-pageant of the railroads—past and present—is the subject of this week's article in the series on New York's World's Fair. Over 400 persons—including 250 actors and actresses—are engaged in producing this great spectacle, which stands in a class all by itself among the Fair's attractions.

LAND-GRANT RATE LOBBY: The government clerks who make a living computing land-grant rate rebates due the government maintain a lobby against ending these rates, and this week they thought up a new argument: If the land-grant rates are ended, the railroads should give up all the land they got under these grants which they still own and on which they have been paying taxes all these years.

JUNKING OLD BUILDINGS: Getting rid of useless buildings to reduce taxes, improve appearance and reduce fire hazards has been a major Lackawanna activity in recent years. Over nine hundred structures have been demolished and the sign has been put on 300 more, as an article herein relates. This is no mere temporary program on this railroad but a permanent duty placed on the maintenance department.

CROSSING CASUALTIES CUT: There were 4.28 crossing accidents per million train-miles in 1938, as compared with 4.89 per million in 1937—so the I. C. C. Bureau of Statistics reveals in figures published herein. A third of the accidents occurred at protected crossings and a fourth of the night accidents occurred where lights had been installed as a safety measure (these proportions doubtless reflecting the greater use of these crossings and suggesting at least the possibility that, without such protection, the accidents at these crossings might have been much greater).



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The Week at a Glance

GOAT GLANDS FOR I. C. C.: Tacit confession by the Interstate Commerce Commission of some of the criticisms which have been leveled at it is implied in its self-imposed reorganization (details herein). In particular, the invitation to favoritism in rate-making of the old set-up is done away with by putting the same commissioners in charge of rates for both railways and motors. Some of the New Dealers, as our Washington editor's story points out, have sniffed at the I. C. C. as decrepit—and the present changes may indicate a determination by these pioneer regulators to prove that they are not exactly wheel-chair cases yet.

WATERED WAGES: It isn't watered stocks that have got the railroads down, but watered wages—so W. L. Fox of the Belt Railway told his colleagues in the Superintendents' Association at their meeting reported herein.

TRUCK TAX HOKUM: The trucking industry in competition with the railroads claims it pays 417 millions in taxes. Actually it is paying 65 millions—and even that runty ante is not real net taxes, because it doesn't begin to cover the highway expenses made necessary by these competitors' vehicles. This fact is only a fragment of the splendid debunking job M. J. Gormley did in his speech to the superintendents, reported herein.

DENVER PRODUCE TERMINALS: Is it "efficient and economical management" for railroads under present conditions to be building competing produce terminals at Denver? The I. C. C. has launched an investigation with the purpose of arriving at an answer to this question.

ADJUSTMENT BOARD STENCH: Are train and engine men just naturally 17 times as contentious as other employees—or is the method of payment of these employees so faulty that it breeds dissension? This question is implied in M. J. Gormley's address to the National Catholic Social Action Congress, reported in the news pages herein. Although train and engine service comprises only 25 per cent of railroad employees, such employees carried 6,080 cases to the National Railroad Adjustment Board last year—as compared with only a little more than 1,000 cases for all other employees combined. The referee decisions of this Board, as Mr. Gormley points out, are breeding dissension and litigation rather than composing it.

WHY INDUSTRY IS DEPRESSED: Producers of iron and steel (including, of course, their employees) got an average of 243 million dollars *less* patronage from the railroads in the seven years ended in 1938 than they did in the seven years ended in 1929. Similarly, producers and employees of the lumber industry got 116 millions *less* railroad money a year from 1932 to 1938 than they did each year 1923-29.

The manufacturing industry as a whole, together with its employees, was 484 millions worse off in railway patronage in the years 1932-38 than it was in the pre-depression period. The leading editorial cites these and other significant statistics to show how tiny are industry's savings from fostering tax-eating competitors of the railways, compared with the market for industrial products which is killed by railroad starvation.

TAIL WAGS DOG: Why do industrial executives and sales managers allow their traffic managers to ruin their largest market? The traffic manager is looking for "cheap" transportation—and too many industrial executives and sales officers are letting their traffic managers make a good showing for their department at the expense of industry's railroad markets. A true trade mark for many industries today would consist of a picture of the company's traffic manager sitting, his thumb to his nose, on top of a cold factory smokestack.

SEVERE SIGNAL REGULATION: The railroads are in for a period of detailed I. C. C. regulation of their signal practices, and an editorial herein outlines the possibilities. The law may be administered with at least the chance of its contributing something to railroad safety or, on the contrary, it may prove a source of infinite irritation and expense to no useful purpose. In any event, the suggestion is made that a careful record be kept of the costs arising out of the new act—so that, after a trial period has elapsed, these costs may be matched up with the benefits, if any, which are achieved.

ANY 100% OFFICERS?: Turn to page 1027 herein and see the 10 characteristics a good superintendent should have, in the opinion of one of the country's alert and up-and-coming operating executives. The list might be interestingly used to give percentage ratings to your friends among operating officers.

BUSES THRIVE, NOT SO RAILS: In February the bus lines reported their traffic up almost 8 per cent over last year and their revenues 6½ per cent higher. In the same month, railroad passengers carried were 13 per cent under last year and revenues were down 4 per cent. Detailed bus traffic and revenue figures, by regions, are given in a table in the news pages in this issue.

REVAMP BILL RAPPED: The lawyers who don't think the Reorganization Court Bill, S.1869, is going to do their clients any particular good had their say this week before the House Judiciary Committee. Leslie Craven called the bill "half baked" and got into an argument on this point with Lawyer Lowenthal, head Wheeler snooper, who is the measure's papa.

DOLES TO PASSENGERS: Passenger service on the Old Colony around Boston is costing \$1.87 in operating expenses for every \$1 customers are paying and the road proposes to abandon the service, to the great chagrin of the affected communities. Probably some of the over-taxed Jersey lines entering New York could tell the same story. The public has grown so accustomed to getting its highway transportation at less than cost that it has come to expect railway rapid transit under the same conditions. It fails to appreciate that the railways have no pipe line into the public treasury (as motor transportation has) to recompense them for that part of the cost of providing service which its users do not pay. Few railroads today can afford to practice such unappreciated philanthropy.

POPPET VALVE: An Americanized poppet valve installation is described in an illustrated article in this issue—designed to adapt the advantages of this device to the larger locomotives, higher steam pressures and higher speeds prevalent on this continent—which make the problems to be solved quite different from those in Europe, where this mechanism was cradled. The story of the development of this device offers the best possible evidence in refutation of the scoffers who contend that the railway industry in this country is deficient in research effort.

MO. TO N. Y. BY TRUCK: Springfield, Mo., to New York, via highway with a carload of dairy products is this week's lost traffic story in the "What Will the Traffic Bear?" series. The railroad rate set-up which invites this kind of competition is given. Why, it is asked, do the railroads keep so quiet at non-compensatory back-haul truck rates, while meekly submitting to such decisions as that in Docket 27837?

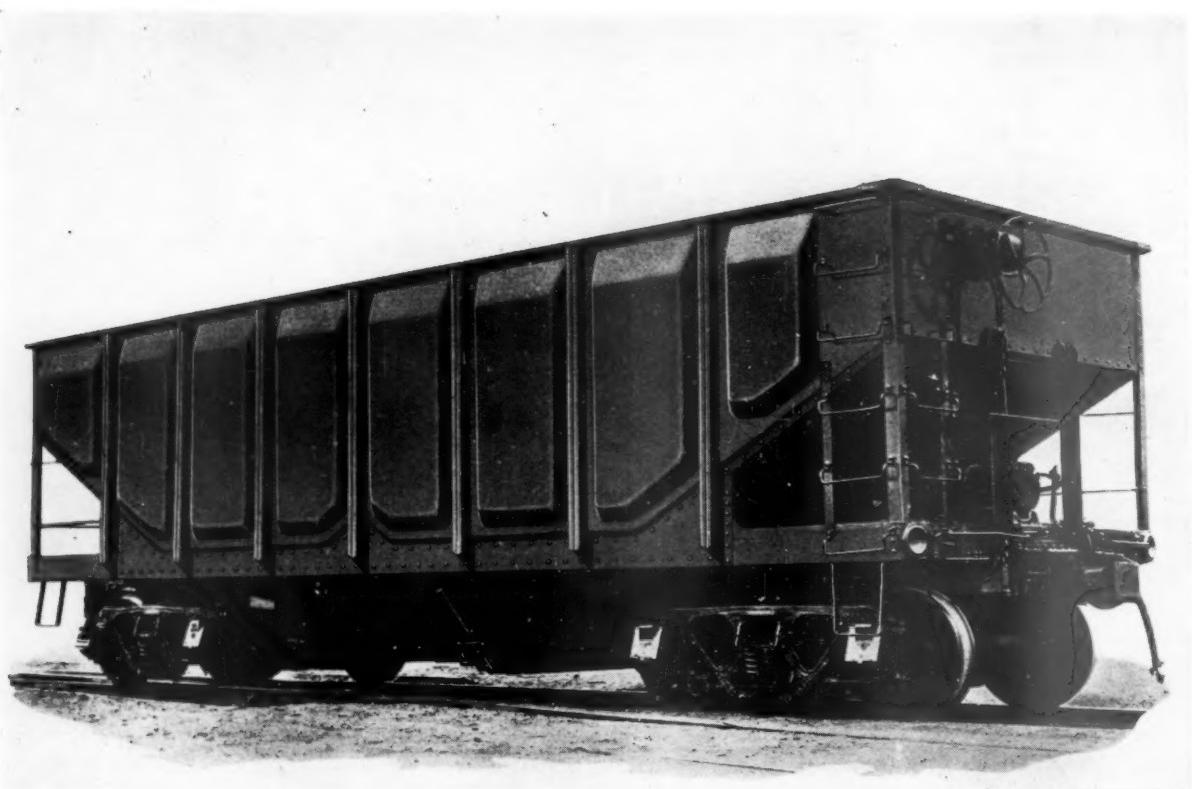
RULE G KAYOED?: The Adjustment Board has forced the Rock Island to reinstate a hoghead, fired for a Rule G violation—so Marcus Bell reported at the Reorganization Court bill hearing this week. The finding, he said, was that the hoghead was only "mildly intoxicated" while on duty. "How," Mr. Bell asked the committee, "would you like to know that the engineer who was driving the train on which you were riding at 70 miles per hour was mildly intoxicated?"

RUTLAND WAGE CUT?: Receiver Murphy of the Rutland, tiring of the dilatory tactics of the unions and the National Mediation Board in this company's wage dispute, has asked the federal court to order a wage reduction. At the present time, wage *deductions*, ranging from 10 to 30 per cent, are being *withheld*—but are contributing to piling up deficits, which, before bond interest, totaled 686 thousand dollars in the last eight months.

Gain In Two Ways By Using

PANELED SIDES

**INCREASE PAY LOAD
AND
REDUCE DEAD WEIGHT**



**STANDARD RAILWAY EQUIPMENT MFG. COMPANY
CHICAGO**

The Week at a Glance

GOVT. LOANS USELESS: If the railroads are not earning enough money to pay the interest on new equipment and other improvements which they might buy for themselves, where are they going to get the money to pay the rent for such equipment and improvements if they are supplied by the government on a rental basis? The leading editorial herein asks this question by way of comment on the new schemes that are going around trying to revive railway purchasing without reviving railway purchasing power. The editorial points out that the hundreds of millions of dollars loaned by the government to the railroads already have not prevented the worst record of unemployment and bankruptcy in history. It is suggested that the government quit trying to cure the symptoms of the railways' distress and get busy with its causes.

MILWAUKEE L.C.L. PLANT: The Grand Trunk has a new l.c.l. station at Milwaukee (used jointly by the Pennsylvania) and details are given in an illustrated article herein. An increased car set-up is provided, with more manoeuvring room for c. and d. trucks.

FREIGHT CAR TRUCKS: Tests to determine whether the conventional designs of trucks upon which freight cars move at high speeds are adequate have been undertaken by the A. A. R. The tests (details given in the news pages in this issue) will also include trucks specially designed for high-speed service.

TRUCKS SEEN VANQUISHED: Professor Charles Breed of M. I. T. predicted last week that the New Haven would win back \$9,000,000 of traffic which it has lost to trucks. He made this contention at an I. C. C. hearing on the road's reorganization, making a plea that the common stockholders be not frozen out in the new set-up of the company in view of the better times that lie ahead.

HARRIMAN AWARDS: The Norfolk & Western, the Duluth, Missabe & Iron Range and the Lake Superior & Ishpeming were the winners in the three different classifications of railroads for their 1938 safety performance, as related in a news report in this issue.

MARCH ACCIDENTS DOWN: 319 people lost their lives from the operation of the railroads in March, as compared with 345 in March, 1938. Almost every category of casualties showed a falling off—except train accidents. These added up to 500, which was an increase of more than 6 per cent over last year.

HASTINGS HEARD FROM AGAIN: The ability of one gent with political acumen to stir up a world of trouble for innocent people, as he rides his hobby around, was demonstrated last week when a Senate sub-committee granted a hearing to Harold ("Postalization") Hastings. A

battery of railroad brains had to forswear productive labor in the effort to head off this scheme before it reaches menacing proportions. And yet they call the bucket brigade the railroads have to maintain in Washington a "lobby." Good grief, with the government running the railroads in everything but name, you have to have some means of contact with your boss to keep him from making a monkey out of you, don't you?

SPOT-LIGHTING THE CHICAGO BOARD: My, My—did you all read "Labor" last week and see the terrible distress it is in at the appearance of newspaper reporters and lawyers at a hearing of the National Railroad Adjustment Board? The star chamber proceedings by which the railroads have been nicked for hundreds of thousands of dollars for odd minutes of work and forced to re-instate employees fired for boozing threatened to become matters of public record. So "Labor" sees a plot to wreck the Railway Labor Act. Nonsense, "Labor"—you boys know as well as we do that paying out money that is not fully earned puts a premium on trouble-making and schedule lawyering. It ruins friendly industrial relations rather than promotes them. Besides, with the railroads as broke as they are, every \$1000 that is paid to a man who didn't really earn it means that some poor guy has to be laid off to raise the money. Finally, if the cases being put up to the Adjustment Board are the nice clean-cut propositions that "Labor" seems to think they are, what harm will newspaper publicity do them?

HOW PRIVATE RR'S MAY VANISH: People who own railroad securities are not going to see many more railroads go broke before they go to Uncle Sam and say, "Looky here, Uncle, you are busting us with your waterways and highways—and it is up to you to buy us out at a fair price." This, in substance, was the way Cassius Clay, R. F. C. lawyer, predicted this week that government ownership is likely to come about. A plausible guess it sounds too—because is not that exactly the plea that Wendell Willkie has made to the government for its purchase of his electric properties with which the T. V. A. is competing?

THAT LOCOMOTIVE: Pictures and full descriptive details of the striking 6-4-4-6 Pennsylvania locomotive on view at the New York World's Fair are given herein. All three of the big locomotive companies collaborated in the design, and a good many "firsts" are in it. For instance, it is the first road locomotive to have 6-wheel trailer and tender trucks, it has the largest locomotive bed ever cast, and it is expected to produce higher cylinder horsepower than any single rigid-frame locomotive has ever heretofore developed. It is designed to haul 1200 tons at 100 m.p.h. on level tangent.

ANTI-RAILROAD BLOC: A bi-partisan group of politicians who cherish the dole-yielding waterways, and who are fired with an equal hatred of the railways, has ganged up in the Lower House of Congress to try to prevent any legislation which will remove any of the railways' handicaps. The steering committee of this "bloc" is composed of the following statesmen: Warren of North Carolina, Mansfield of Texas, Bland of Virginia, Disney of Oklahoma, Kleberg of Texas, Harrington of Iowa, Whittington of Mississippi, Culkin ("Canal-Boat Frank") of New York, Oliver of Maine and Pittenger of Minnesota. In a statement in the House, Chairman Lea of the Interstate Commerce Committee warned that transportation "is a subject that readily lends itself to the demagogue" and expressed the belief that the law-makers would not be swayed by such tactics.

RUTLAND WAGE CUT: Federal Judge Howe has ordered a reduction in wages of Rutland employees on a sliding scale, varying from 10 per cent for lowest-paid employees to 30 per cent for the highest paid. In ordering the reduction, the court held that the employees had violated the Railway Labor Act by refusing to negotiate on the wage question unless six arbitrary demands (enumerated in the news pages herein) were granted.

WOODRING, SABOTEUR: Be he Republican or Democrat, no man ever gets the job of Secretary of War any more who has the intellectual and intestinal fortitude to hold out against the waterway partisans who swarm in the War Department. Harry Woodring, the latest "fellow traveler" of these ditch-diggers, has just had put into the record a long statement in opposition to practically every measure by which profligate expenditure on waterways would be curbed, or their burden on the railways diminished. Woodring's attitude seems pretty close to attempted sabotage of the Big Chief's transportation program.

DITCH DOLE UPED AGAIN: The Senate Commerce Committee, which is a sort of clique of waterway fans, has taken the \$83,000,000 Rivers and Harbors Bill as passed by the House and jacked it up to more than 400 millions. Every pork barrel project you ever heard of is now in the bill, including the Tombigbee and the Umatilla. If these Senatorial spendthrifts have their way, Congress is headed toward the enactment of the biggest waterways bill on record—and, incidentally, toward adding another crushing competitive burden on the overladen railways.

MAY BUY OWN BONDS: The new tax bill, as it passed the House, would permit companies in "unsound" financial condition to buy their own obligations at less than par without incurring a tax liability on the "profit" thus earned. This feature was advocated by Judge Fletcher in behalf of the railroads while the bill was being considered in committee.

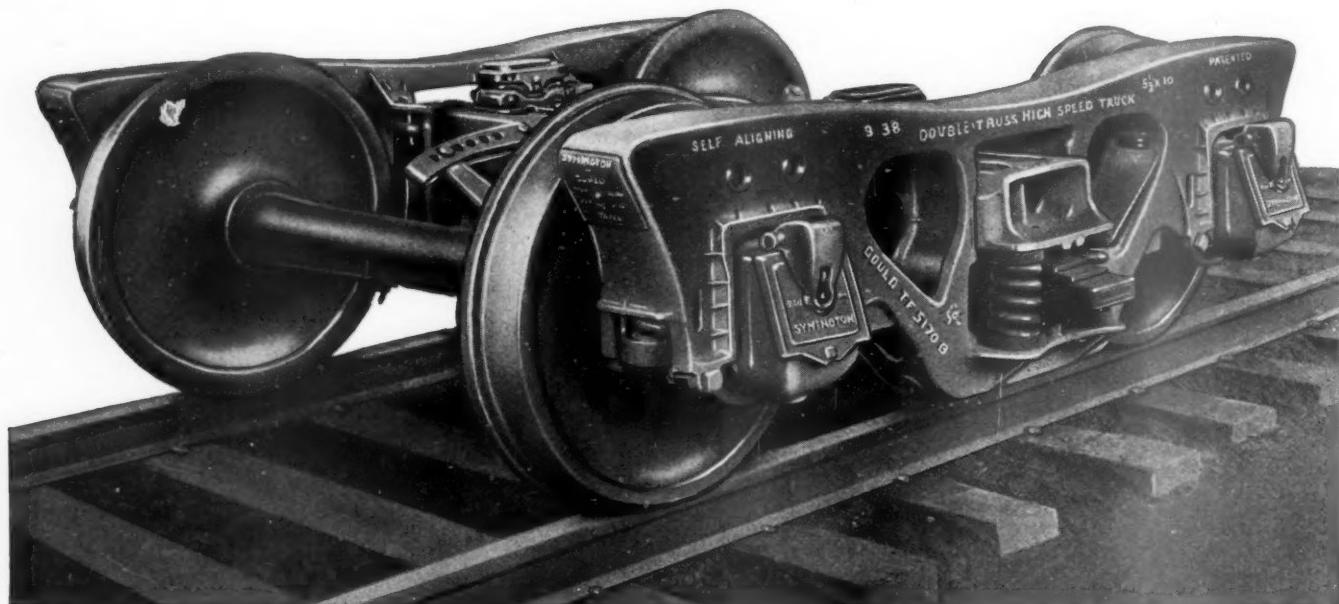
GOULD HIGH SPEED TRUCK

FULLY EQUALIZED & SELF-ALIGNING

100% MORE SPRING TRAVEL

SEPARATE JOURNAL BOXES

DECREASED UNSPRUNG WEIGHT



ALL SPRING GROUPS NON-HARMONIC
“COIL - ELLIPTICS” OR SNUBBERS
AT BOLSTER

RESILIENT SIDE BEARINGS
CONTROL
CAR BODY ROLL

SYMINGTON

ONE BOLD STROKE

Slashes 25% to 50% deadweight



***MAYARI R** is a new tool in the hands of the designer. At one fell swoop weight can be cut up to 50%.

High strength—increased capacity and low cost with Mayari R

MAYARI R provides, at a low cost, the strength of an alloy steel and the workability of a mild carbon steel. It is a low-alloy, high-strength steel that fills a broad gap in the range between low-cost structural steel and higher-priced alloy steels in the stainless class.

The yield point of Mayari R is approximately twice that of mild carbon steel. As a result, design based on strength allows a weight reduction in the structure of up to about 50 per cent. The consequent gain in capacity is especially valuable in transportation units and containers.

While Mayari R costs more, pound for pound, than mild carbon steel, the weight saving possible with Mayari R affords a finished-job price approximately the same as that of structural steel. Re-design to take advantage of Mayari R properties will allow the greatest economy.

Workability and Weldability

With its low carbon content and high ductility, Mayari R is readily workable. Its hot- and cold-forming properties are practically the same as mild carbon steel. It does not appreciably air-harden. Heat treatment is

unnecessary after forming. All the usual electric and gas methods of welding can be used with Mayari R, with methods and procedure similar to those with carbon steel.

Great Corrosion Resistance

A resistance to atmospheric corrosion of from five to six times that of mild carbon steel, and from two to four times that of copper-bearing steel, is shown by long-time tests on more than 15,000 test specimens in industrial atmospheres.

The Steel of a Thousand Uses

Mayari R presents tremendous possibilities and advantages to all manufacturers. It extends the scope of the designer, utility to the user, and economy to the owner. The decided reduction in deadweight and corresponding increase in pay load in scores of transportation units afford definite economies. Increased life under corrosive atmospheric conditions adds materially to the service value of many products.

Detailed information on Mayari R is contained in a new catalog. We shall be glad to send you a copy and to confer with you on the profitable adaptation of Mayari R to your own requirements.

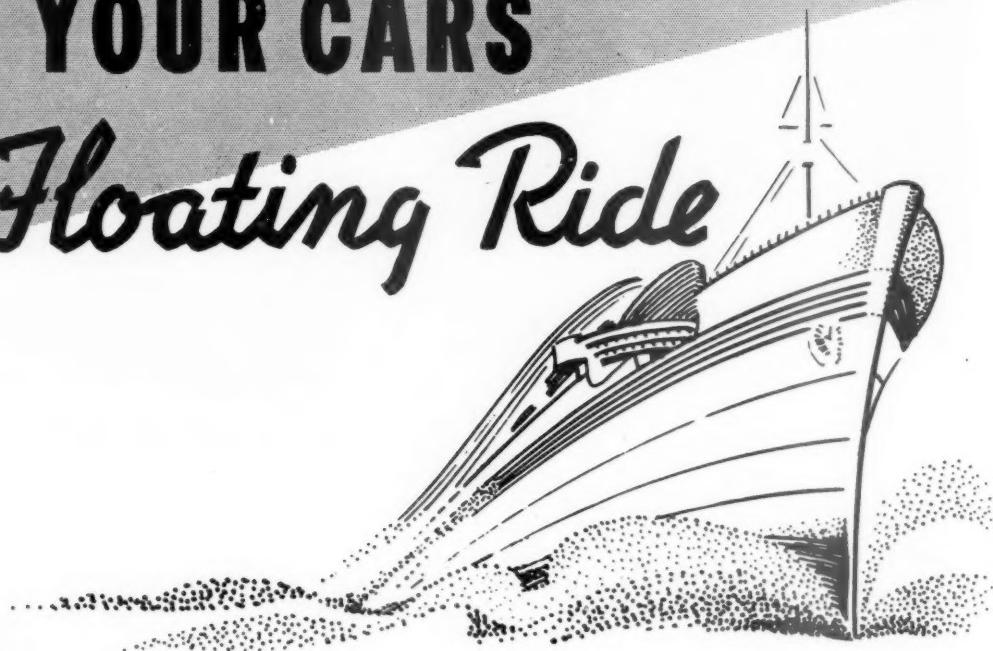
BETHLEHEM STEEL COMPANY



GIVE YOUR CARS *The Floating Ride*



Holland Friction Volute Springs



Improved Holland Friction Volute Springs produce a floating ride because they are not only good Snubbers but also good cushions.

NEWLY IMPROVED

- Improved heat treatment produces a better grain structure and more uniform hardness throughout the Friction Volute Spring, thereby insuring a uniform product.
- More spring steel and more coil is now being used in the Friction Volute Spring, insuring lower stresses and longer life.

These improvements make it possible to develop the full possibilities of the unique Friction Volute Spring principle.

HOLLAND
COMPANY

332 SOUTH MICHIGAN AVENUE, CHICAGO

New

REFRIGERATOR HATCH CLOSURE and INSULATING GASKET COMBINED

HOLLAND CAP-KO

REFRIGERATOR HATCH CLOSURE

Open the CAP-KO Hatch Cover with one hand and the refrigerator is ready for icing. No old-fashioned wedged insulating plug to be pried loose or damaged with bar or other tool.

AIR-TIGHT CLOSURE

The Hatch Cover is designed for flat or top seal closure. A cushion gasket of ultra-soft, yielding material around the underside of the Hatch Cover at the outer edge, forms an air-tight seal under 3-16" compression when the cover is closed.

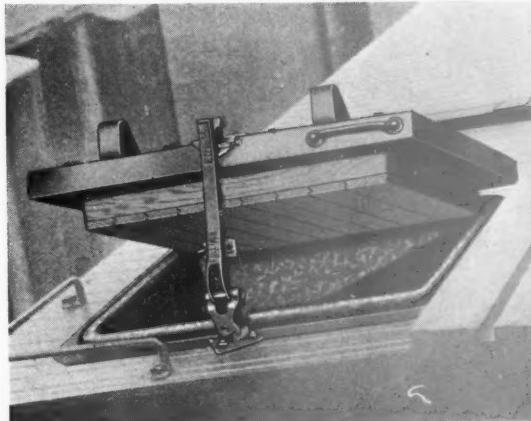
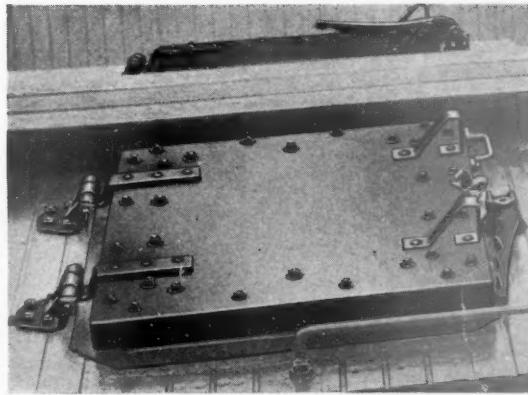
The gasket is brine-proofed, and closes around the top surface of the Hatch Frame, the surface being rounded to shed salt, ice or foreign matter. The curved surface also increases the contact area for the gasket, and produces an air-tight closure through which it is impossible for cinders to filter into Hatch or ice chamber.

Service-Tested Four Years

These gaskets are giving satisfactory service after four years' use on several hundred refrigerator cars. Several thousand additional cars now equipped.

For Old or New Cars

Let us show you how the CAP-KO Refrigerator Hatch Closure enables you to get rid of the bunglesome insulating plug, and the delays, repairs and renewals it causes.



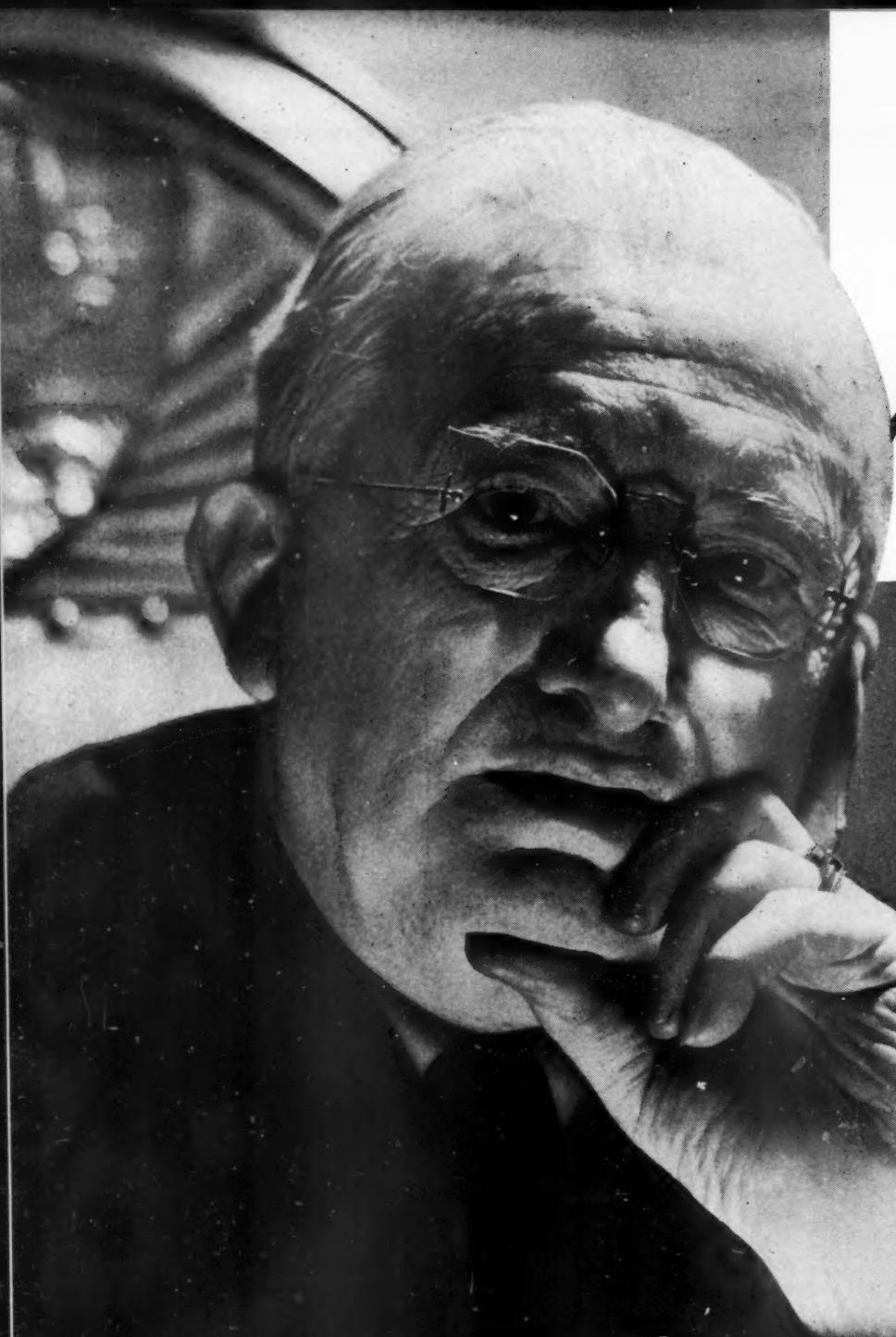
Patented and Patents Pending

HOLLAND COMPANY

332 SOUTH MICHIGAN AVENUE, CHICAGO

20,254

proved the



One of the 52 new COR-TEN "Twentieth Century" Pullmans.
In addition to these roomette cars, the New York Central will use 4 new Cor-TEN-built baggage-mail cars and 6 new diners, which make up four complete "Twentieth Century" trains. 52 similar U-S-S Cor-TEN Pullmans, for the Pennsylvania Railroad, of welded construction produce exteriors perfectly smooth and combining greatest rigidity and strength with reduced weight and minimum air resistance.



COR-TEN Automobile cars 5 tons lighter. The Chicago, Milwaukee, St. Paul & Pacific built 1500 Cor-TEN automobile cars of all-welded construction with a capacity of 100,000 lb. and an inside length of 40'6" and 50'6". The light weight of the 50'6" cars is 47,300 lb. or approximately 10,000 lb. less than other cars of similar type and capacity.

U-S-S COR-TEN used to resist salt and atmospheric corrosion. 4700 of these modern refrigerator cars have been built for the Pacific Fruit Express, some in the company's own shop, others by American Car & Foundry Company, the General American Car Corp., the Pacific Car & Foundry Company, and Pullman Standard Car Mfg. Company. COR-TEN is used in the underframe, and in many of the sheets subject to the most corrosive action.



Light-weight Cars have the case for COR-TEN

• In freight and passenger cars, U·S·S COR-TEN construction has safely reduced excess weight . . . has increased payload capacity . . . has boosted earnings . . . has lowered operating costs.

WITNESS the 19,249 Cor-Ten freight cars built to date. Refrigerator cars, box cars, gondola and hopper cars. Some as much as 5 tons lighter per car.* Each able to carry additional payload in place of excess weight. Saving the railroads an average of \$18.00 per year for every ton of dead-weight trimmed off.

Witness, too, the 1,005 Cor-Ten-built passenger cars. Coaches and Pullmans built 15% to 30% lighter. Equipment that shows as much as

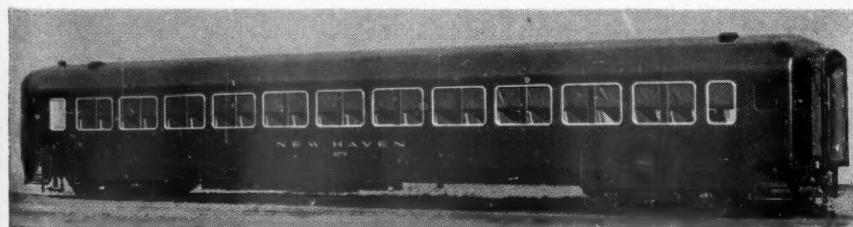
25 tons reduction in weight per car. That saves 2500 ton-miles, with resulting lower transportation costs, for every hundred miles operated. Attractive, modern equipment that not only costs less to haul, but which in most cases has increased railroad revenues by phenomenally increasing passenger traffic.

In the short space of four years, U·S·S COR-TEN applications have materially changed the railroad man's conception of what is struc-

turally right and economically sound in rolling-stock design and construction. He no longer thinks of strength in terms of weight. And this is due largely to the demonstrated success of the U·S·S Cor-Ten equipment now in service.

On more than 40 railroads, COR-TEN construction has demonstrated that lightweight equipment can be not only safe, strong and long-lasting but eminently profitable. As a result, the question among forward-looking railroad engineers and executives is no longer "Why should we build our equipment lighter?" but "Can we afford to operate the heavy equipment that keeps our costs up today?" To both questions U·S·S COR-TEN supplies the logical answer.

Built 26% lighter with U·S·S COR-TEN. 200 coaches built for the New York, New Haven & Hartford Railroad Company, by Pullman-Standard Car Mfg. Co. weigh approx. 108,700 lb. each—saving about 36,300 lb. over conventional design.



* On these 19,249 cars, average weight reduction is 4800 lbs. per car.

U·S·S HIGH TENSILE STEELS

AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago and New York

CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago

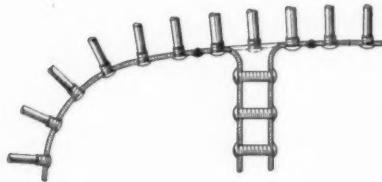
COLUMBIA STEEL COMPANY, San Francisco • NATIONAL TUBE COMPANY, Pittsburgh
TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham

United States Steel Products Company, New York, Export Distributors
Scully Steel Products Company, Chicago, Warehouse Distributors

UNITED STATES STEEL

NICHOLSON THERMIC SYPHONS

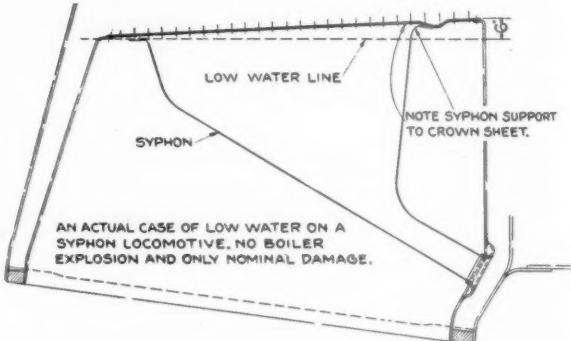
Syphons provide extensive additions to firebox heating surface. Large walls of steel plate located to



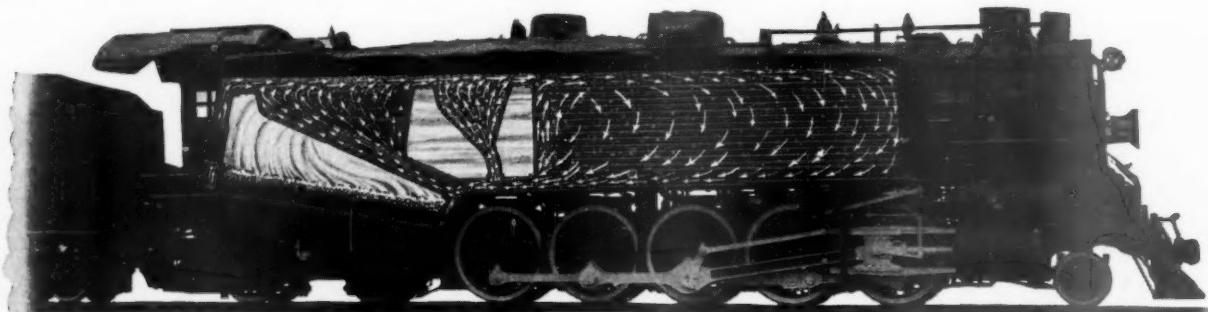
Syphons become an integral part of the crown sheet (not just an attachment thereto) in the form of a longitudinal flanged girder support. This is an important factor of safety in case of low water.

Syphons definitely increase the circulation in the entire boiler! As shown in longitudinal section they draw water from the throat sheet, the lowest part of the boiler, and by thermic impulse

best advantage for maximum heat absorption from the high firebox temperatures.



carry it through the Syphons and over the crown sheet creating a circulation which extends clear through to the forward section the whole length of the boiler.



SOME ELEMENTARY FACTS ON CIRCULATION. It is important to note that the area of the outlet opening of the Syphons into the crown sheet is many times that of the intake at the throat sheet. This is most desirable and a real necessity for free circulation. A small outlet area as related to the intake always acts as a choke. In the process of evaporation the water is being rapidly heated and becomes lighter as the temperature is raised. The unit weight of water occupies a larger volume or space as its temperature

is raised, hence the outlet area must be progressively greater than the intake, if a continuous and vigorous water circulation is to be maintained without excessive ebullition. Further, a unit weight of steam occupies a very much greater volume or space, often in the order of 100 to 1 than the same unit weight of water. It, therefore, is evident that the outlet opening must be materially greater than the area of intake in order to obtain a free exit for the steam and water.

★ ★ ★ ★

By reason of the added heating surface and complete circulation, Syphons promote fuel economy, better combustion, make for better steaming locomotives, add to the boiler capacity, increase firebox and flue life with lower maintenance costs, and provide posi-

tive assurance against boiler explosion in case of low water. It is obvious that for complete safety, Syphons must be installed in combustion chambers, as well as in the firebox proper.

LOCOMOTIVE FIREBOX COMPANY

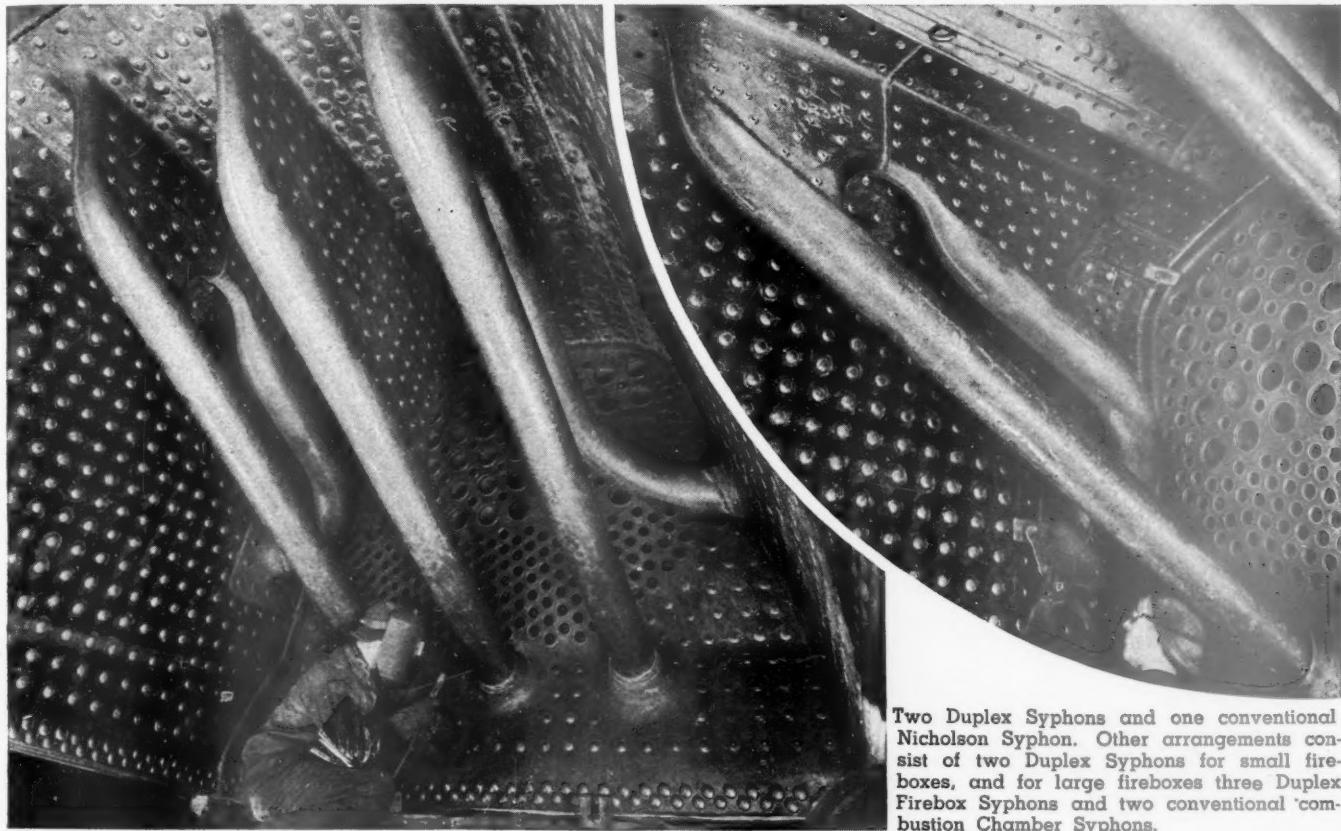
NEW YORK CHICAGO MONTREAL

D U P L E X

N I C H O L S O N T H E R M I C S Y P H O N S

(TWO SYPHONS IN ONE)

For Modern High Pressure Locomotive Boilers



Two Duplex Siphons and one conventional Nicholson Syphon. Other arrangements consist of two Duplex Siphons for small fireboxes, and for large fireboxes three Duplex Firebox Siphons and two conventional combustion Chamber Siphons.



With this type of installation, positive safety is assured.

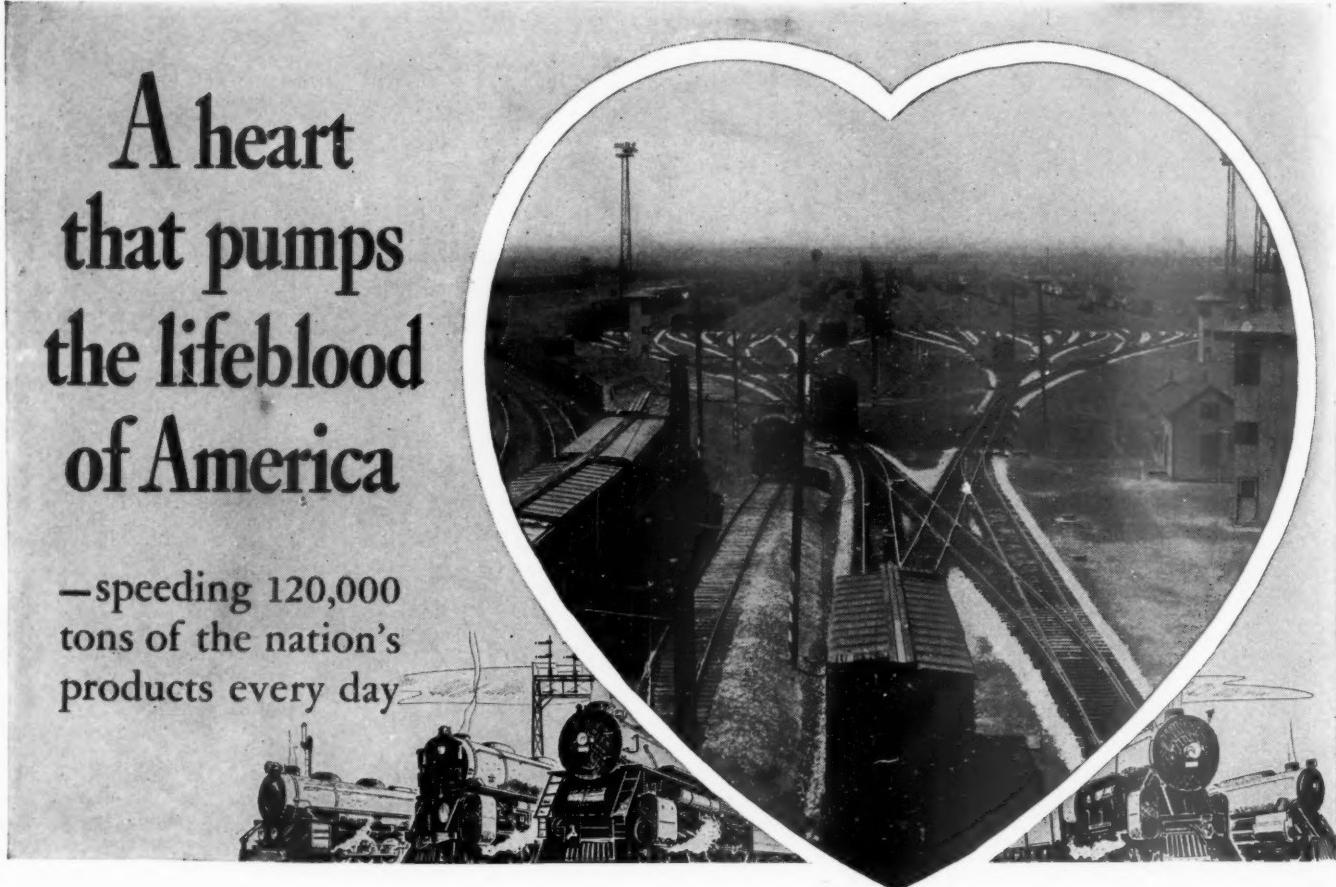
Duplex Siphons are designed for greater flexibility. They more readily absorb excessive expansion and contraction caused by pressure and temperature changes, which are especially severe in large fireboxes and high pressure boilers. They increase circulation of water in the boiler with more vigorous effect in the side legs of the firebox.

Low Syphon maintenance, substantial brick arch support, increased boiler capacity, fuel economy, reduced boiler maintenance and positive safety from boiler explosions due to low water result from the use of DUPLEX NICHOLSON THERMIC SYPHONS.

LOCOMOTIVE FIREBOX COMPANY
NEW YORK CHICAGO MONTREAL

A heart that pumps the lifeblood of America

—speeding 120,000 tons of the nation's products every day



HOW would you like the job of sorting 6,000 freight cars a day—taking trains apart as they flow in from the east and west and south and north—putting them back together again in new combinations, so the cargo they carry can roll on its way to mill and market?

That's what happens in the maze of railroad tracks you see pictured here. And this is only one of several yards serving Chicago which handle a total of 30,000 cars every day.

Strings of cars roll in on the tracks in the foreground. Car by car, each train is split among some three dozen tracks in the distance, with such speed and accuracy that one car can be handled every 20 seconds.

These tracks can be filled and cleared

in two hours—in one of those miracles of transportation so smoothly done by the American railroads that the public takes them for granted. And what takes place here goes on, day and night, in thousands of railroad yards all over the country.

It's only because the railroads operate with such speed and efficiency that they deliver to the American public what is literally the finest job of low-cost mass transportation in the world.

And mass transportation is modern transportation—the only kind of transportation which makes possible our modern world of mass production and mass distribution of the things which the American people need and enjoy.

What's more, this modern mass transportation by railroads shows steady progress year by year.

As everyone knows, passenger traffic is faster. And freight has been speeded up as well. Between many important commercial centers as much as 500 miles apart, the railroads now give overnight freight service. Four days have been cut from the running time coast to coast.

All that the railroads need, as far as government transportation policies are concerned, is a *fair chance to earn a living*—with no favor either for themselves or for their competitors.

The Transportation Act of 1939 (S2009), recently passed by a vote of 70 to 6 in the U. S. Senate, is a step in this direction. Similar action should be taken by the House of Representatives.

For better times—support your representatives in Congress and the state legislatures in every effort to establish A SQUARE DEAL IN TRANSPORTATION.

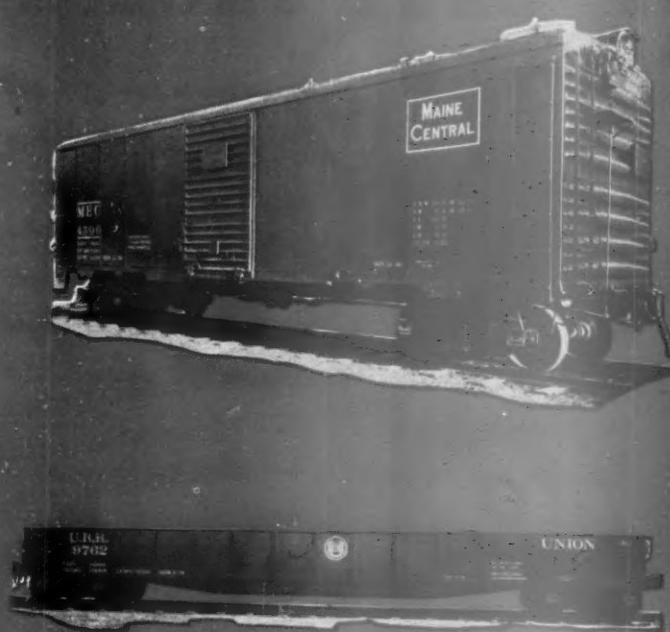
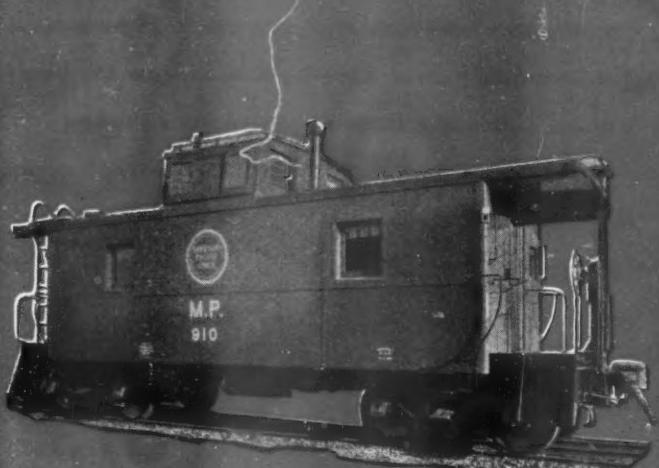


**ASSOCIATION OF
AMERICAN RAILROADS**

WASHINGTON, D. C.

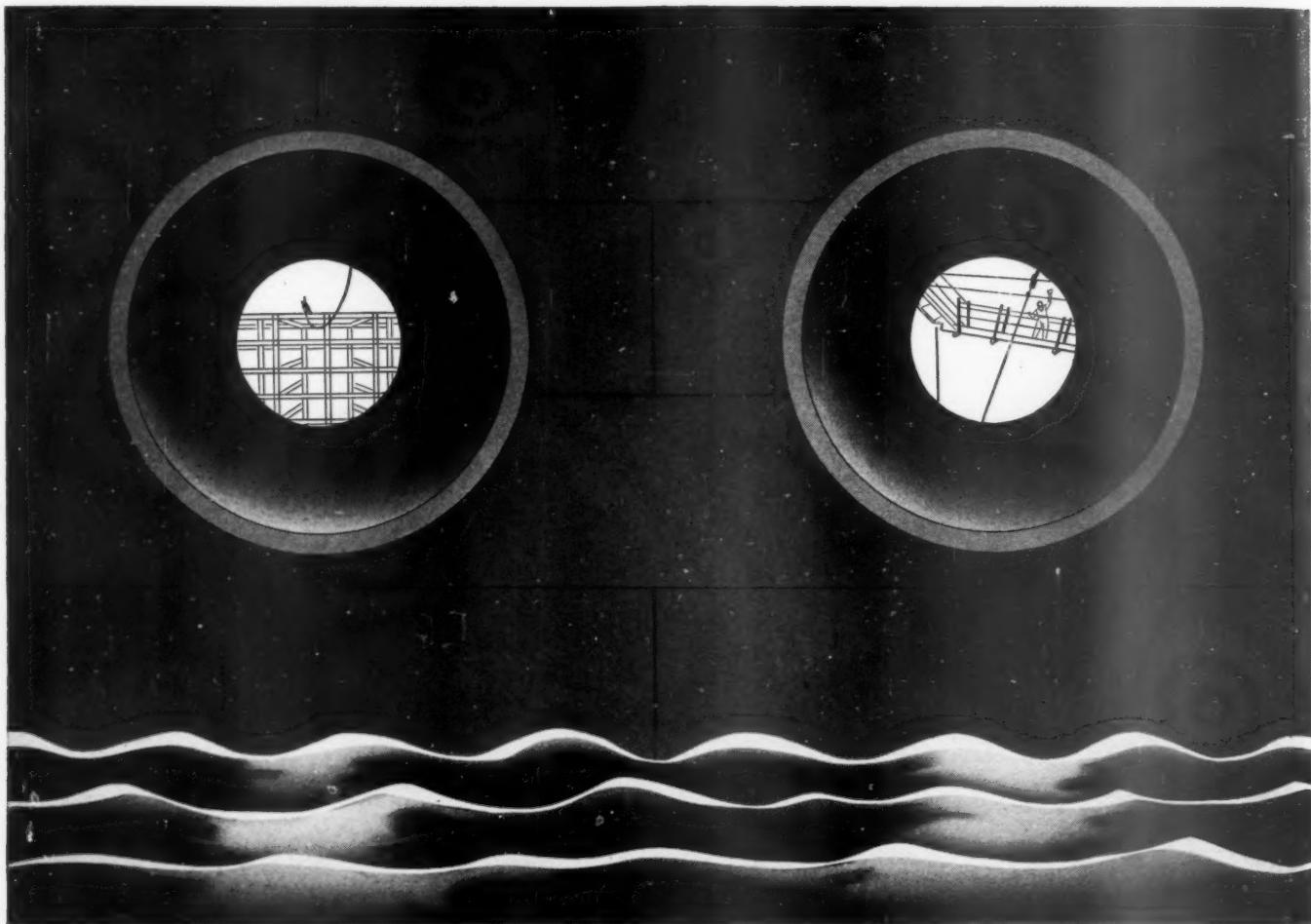
**A FAIR FIELD.
NO GOVERNMENT FAVOR
IN TRANSPORTATION**

MAGOR CARS



MAGOR CAR CORPORATION

50 CHURCH STREET
NEW YORK, N. Y.



A CAST IRON THAT CUTS COSTS

Especially tough service requirements need not call for expensive alloy combinations. Often a less costly, but judiciously chosen, material will do the work.

Such was the case with castings for reservoir discharge nozzles and lock-gate valves. Physical specifications called for 55,000-65,000 p.s.i. tensile strength, 5,300-6000 lb. transverse strength (12" centers), 220-240 Brinell hardness.

All this plus the ability to withstand the corrosion of water containing sulphuric acid from mine drainage.

Copper-Molybdenum iron containing 0.80 - 1.00% Copper and 0.30 - .40% Molybdenum met all the requirements of strength, hardness and acid resistance. The lock-gate valves have been in service 2½ years without noticeable signs of corrosion or erosion.

Investigation may show where you, too, can apply Molybdenum iron to advantage. Our technical book "Molybdenum in Cast Iron" which contains wealth of practical data, will be sent free on request to interested production executives and employees.

PRODUCERS OF MOLYBDENUM BRIQUETTES, FERRO-MOLYBDENUM, AND CALCIUM MOLYBDATE

Climax Mo-lyb-den-um Company
500 Fifth Avenue New York City

Consider the advantages of PROVED DESIGN



Full box section bolsters . . . strength . . . all the way . . . including spring seat section . . . no added weight of a complicated design.

Double-truss side frame . . . proper metal distribution evolved through 15 years of test . . . large bolster bearing areas . . . large one-level spring seat.

Standard springs . . . easily inspected . . . easily removed . . . any balanced arrangement desired. Plain rectangular shims . . . quickly inserted at an accessible location.

All these recognized advantages are found in Self-Aligning Trucks, plus a spring-plankless design that permits flexibility . . . maintains a large bearing area between bolster and side frame . . . limits angularity by large radial stops.

Over 50,000 car sets have been ordered

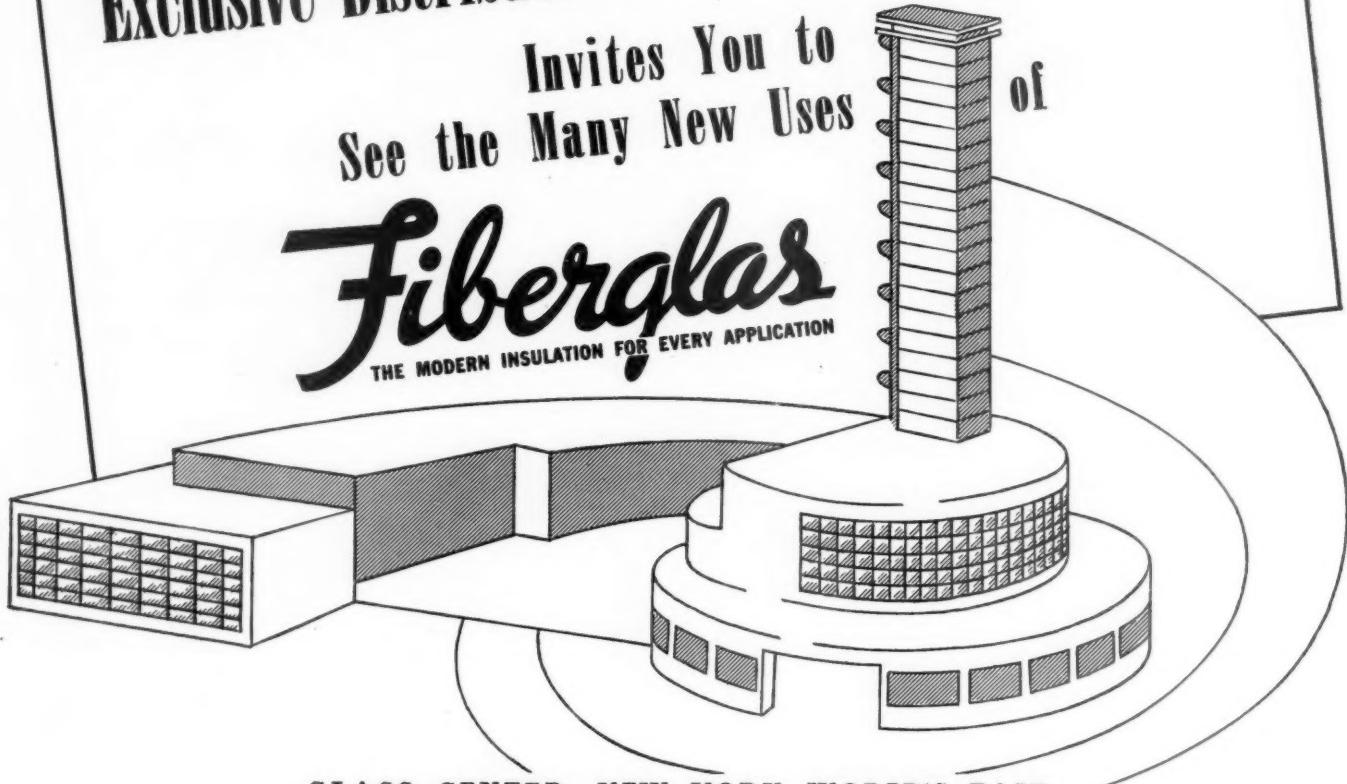
SELF-ALIGNING
spring-plankless
TRUCKS

AMERICAN STEEL FOUNDRIES

Gustin-Bacon Exclusive Distributor to the Railroad Industry

Invites You to
See the Many New Uses

Fiberglas
THE MODERN INSULATION FOR EVERY APPLICATION



GLASS CENTER, NEW YORK WORLD'S FAIR

Gustin-Bacon is proud to be the exclusive distributor to the Railroad Industry of so versatile a product as Fiberglas. Originally introduced as a revolutionary new insulation, Fiberglas has since been improved and developed for countless other uses in railway equipment. To appreciate fully the diversified uses of Fiberglas, it is necessary to SEE actual examples. For that reason we invite and urge you to be our guest in the spectacular Glass Center at the World's Fair.

Fiberglas is a product of Owens-Corning Fiberglas Corporation

GUSTIN-BACON MANUFACTURING CO.

Kansas City • New York • Chicago
Philadelphia • San Francisco





Dayton V-Belt Maintenance Engineers

ARE PAID TO BE DISSATISFIED

It is a tribute to the American Railroads that they are never complacent about the scope, safety and comfort of their service to the communities and the nation which they serve so vitally.

So, as might be expected, we of Dayton who supply so many great railroads with "D-R" V-Belt Drives and Endless Belt Drives for Air-Conditioning and Car-

Lighting Power are never complacent or satisfied with mere "good" Dayton V-Belt performance.

Our real job just begins when we install Dayton V-Belt Drives. From that minute on our Maintenance and Inspection Engineers are studying *your* belt performance—checking *your* maintenance procedure—working with *your* yard

crews to constantly increase the efficiency and lower the operating costs of *your* Dayton V-Belt drive equipment.

That's why the field reports of our Maintenance Engineers often contain such reports as this: "I'll be in this yard a couple of more days—the railroad is satisfied that our 'D-R' V-Belts are doing a good job—but I know we can help them get *still better* performance, longer life, and lower costs."

So, in your railroad yards which are the mainsprings of a mobile America, you will continue to find, most any time, a Dayton Maintenance Engineer *who is paid to be dissatisfied*.

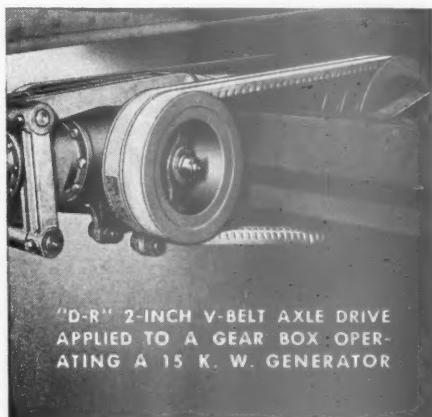
**THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO**
Pioneers of Dayton V-Belts and Connectors

Dayton
"D-R" V-BELT AXLE DRIVES
AND ENDLESS COG-BELT DRIVES
FOR CAR-LIGHTING AND AIR-CONDITIONING EQUIPMENT

MADE BY THE WORLD'S LARGEST



MANUFACTURERS OF V-BELTS



"D-R" 2-INCH V-BELT AXLE DRIVE
APPLIED TO A GEAR BOX OPERATING A 15 K.W. GENERATOR

Here it is!

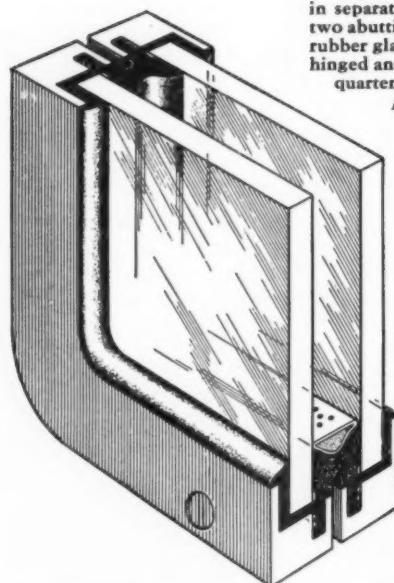
What You've Hoped
Would Come —

DOUBLE-GLAZED
SASH

without



Fog • Film • Frost



Two glass panes, $\frac{1}{2}$ inch apart, glazed in separate metal frames. Separated by two abutting, compressible, removable rubber glazing strips. The inner sash is hinged and compressed to the outer by quarter-turn, spring-actuated "Compressionizers" spaced around the sash, which maintain and equalize the pressure seal, creating the Edwards Inner-Compression-Seal. . . . Easily removable rubber glazing strips are on the inside, protected from exposure and deterioration. Sash easily and quickly opened for maintenance. No metal to metal contact between outside and inside frame; eliminates "sweating" of the inside frame. Dehydrating tubes located within the sealed dead-air space without breaking or impairing permanent inner seal.

Designed and built by "Edwards"—the name that for nearly 50 years has meant dependable service to most exacting needs of American Railroads.

Edwards Inner-Compression-Seal insures greatest degree of economy of heat and cold. It is also the simplest design for maintenance or glass replacement . . . and absolutely foolproof.

Before you create or close your sash specifications for air-conditioned new or old cars, write or wire for data, specifications or convincing demonstration.

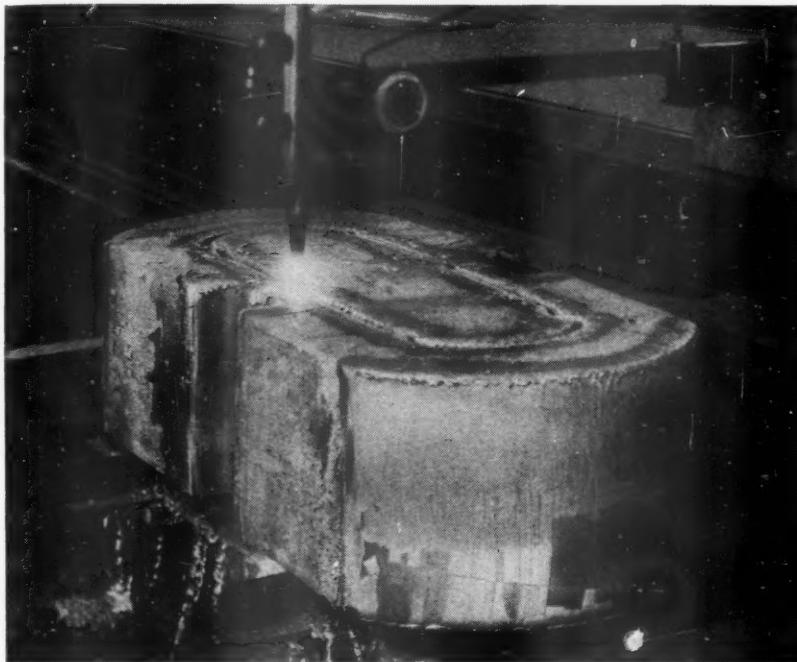
O. M. Edwards Co., Inc., Syracuse, N. Y.
2557 Fargo Avenue, Chicago, Ill.
50 Church Street, New York City

EDWARDS

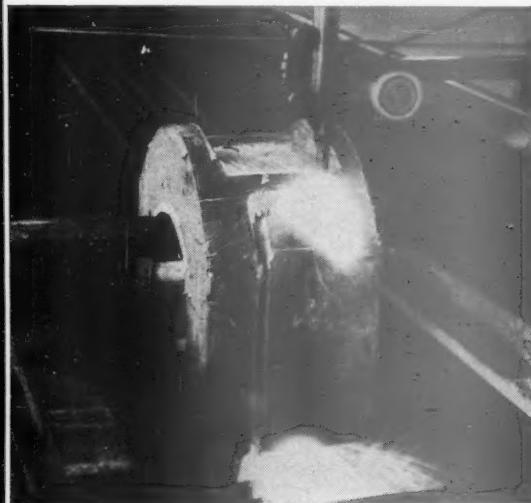
INNER-COMPRESSION-SEAL

DOUBLE-GLAZED SASH

Cutting Locomotive Driving Boxes from Billet Stock . . .



Left: In cutting two locomotive driving boxes from a 50 x 22 x 12½-inch billet, the sequence of cuts is planned to save time and cutting gases.



Above: This cut through 19 inches of steel forms one of the wedge channels in the driving box.

A TYPICAL ECONOMY EFFECTED BY SHAPE-CUTTING

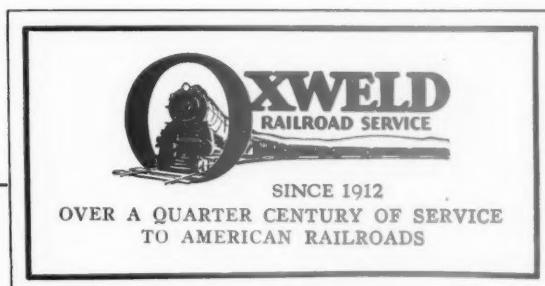
OXY-ACETYLENE shape-cutting is a valuable aid in reducing inventories because it enables many locomotive and car parts to be cut to shape as needed from rolled or forged steel. In addition to driving boxes, such parts as rods, cross-heads, frames, and frame members can be produced at low cost. It is significant that railroads which have been Oxfeld customers for many years have achieved a high degree of efficiency in their shape-cutting operations with the aid of Oxfeld's specialized experience.

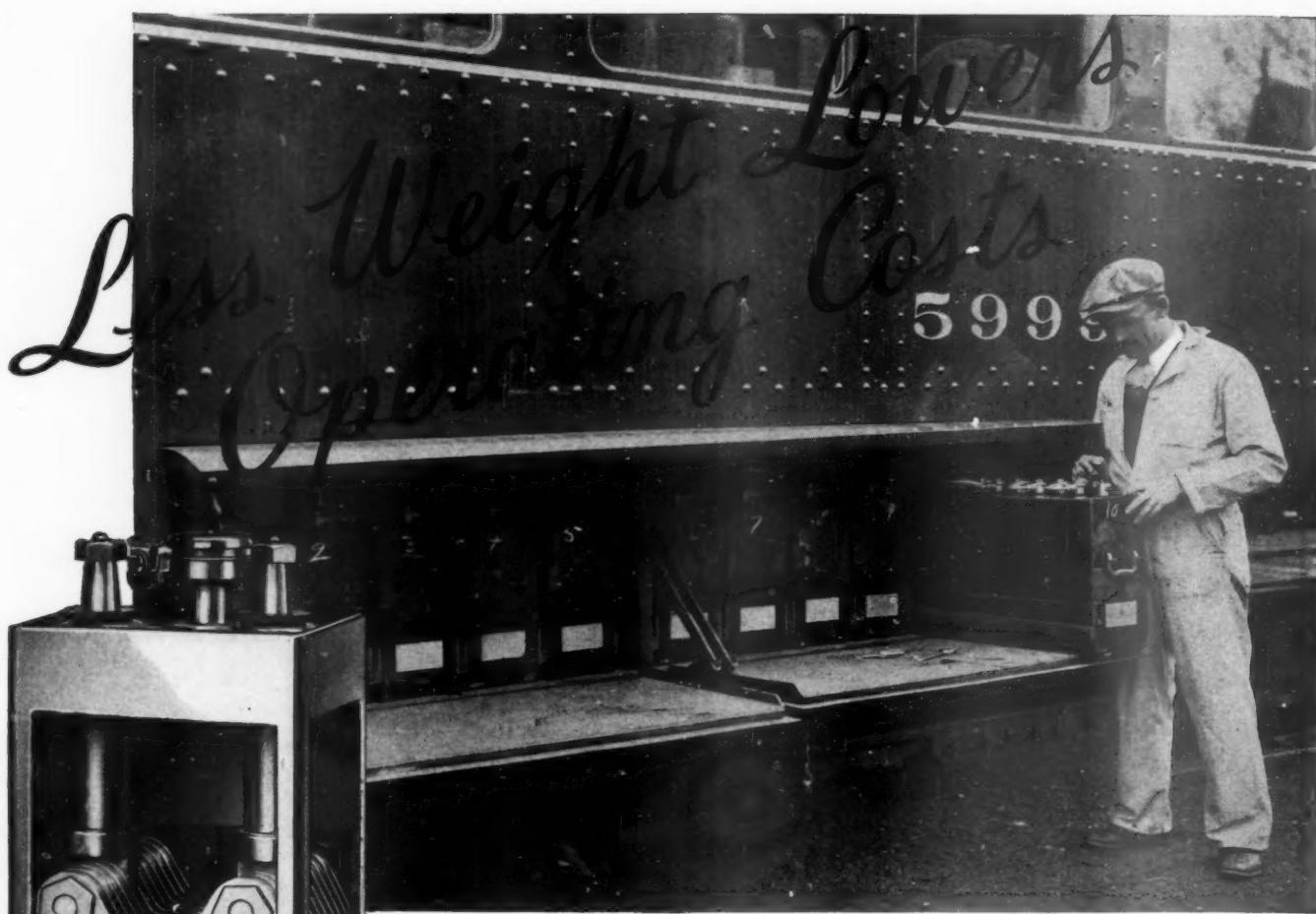
In addition to bringing oxy-acetylene welding and cutting to railroads, Oxfeld Railroad Service provides heat-treating of rail ends, hard-facing of wearing parts, pressure welding of rail, and "Unionmelt" welding. If there is a place for these processes in your operations, consult The Oxfeld Railroad Service Company, Unit of Union Carbide and Carbon Corporation, Carbide and Carbon Building, Chicago and New York.

The words "Oxfeld" and "Unionmelt" are registered trademarks of Units of Union Carbide and Carbon Corporation.



Above: The smooth, clean surfaces of the completely cut driving box require a minimum of machining.





THE MODERN TREND to light weight passenger cars is a forward step that is proving very profitable on many roads. Such cars not only attract additional traffic but reduce operating costs. Less dead weight hauled,—requires less fuel and minimizes wear and tear on equipment and track.

■ Maximum benefits from reduced dead weight can only be achieved by selecting dependable and time-proved car appurtenances which best answer the light-weight requirements. Edison Storage Batteries are outstanding in this respect. They are the lightest of all batteries available for this service. In addition, their rugged construction requires less care in maintenance and their long dependable life makes for lower costs per year. It is the most economical power source for the purpose.

EDISON

DIVISION OF THOMAS A. EDISON, INC.



Medallion Art Co.

STORAGE BATTERY

WEST ORANGE, NEW JERSEY, U.S.A.



SAFETY MOTOR ALTERNATOR *for* FLUORESCENT LIGHTING

*F*OR the operation of fluorescent lamps on railway passenger cars it is necessary to convert from 32 volts or 64 volts direct current to 110-115 volt, 60 cycle alternating current. To provide the same type of dependable equipment as our standard car lighting generators we have developed the type AB-23600 motor alternator designed to operate on 40 volt and 80 volt car lighting systems with either lead or Edison batteries and deliver 2000 volt amperes alternating current at 110-115 volts, 60 cycles.

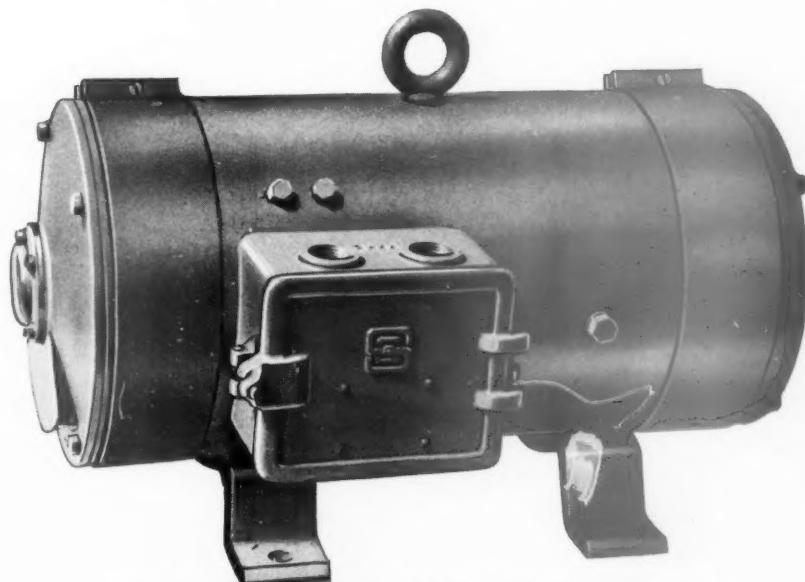
With the SAFETY motor alternator standard starting auxiliaries can be used. Advantage can therefore be taken of any improvement made in the starting auxiliaries for commercial purposes.

We recommend the use of the SAFETY motor alternator because it offers the only means of controlling both the voltage and frequency within very close limits and therefore insures satisfactory operating conditions regardless of any modification of design of either lamps or accessories.

The rating of the alternator is 2000 volt amperes, which is sufficient capacity to supply 70, 15 watt fluorescent lamps with their starting auxiliary losses.

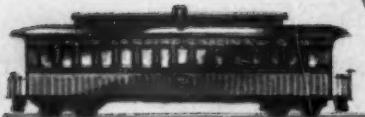
ADVANTAGES

- Inherent voltage and frequency regulation.*
- Standard starting auxiliaries can be used.*
- Independent switching of lamps permitted.*
- Failure of one lamp has no effect on others.*
- Balanced circuits are unnecessary.*
- Long life. Comparable to standard equipment.*
- Simplicity of unit makes for easy maintenance.*
- Will operate all standard A. C. accessories.*



SAFETY 60 CYCLE, 110 VOLT MOTOR ALTERNATOR.

THE SAFETY CAR HEATING & LIGHTING COMPANY
NEW YORK CHICAGO ST. LOUIS BOSTON
PHILADELPHIA SAN FRANCISCO MONTREAL



THE RAILROADS were just venturing westward from the Atlantic seaboard—and less than a generation separated us from the stage coach—when we built our first cars. In those days railroading was pioneering, and we learned to pioneer from the start.

The tiny wooden coaches which 70 years, or more, ago came from the old Jackson & Sharp car shop in Wilmington, Delaware, seem today something from a past long lost; appear almost fantastic in their inadequacy. Yet the men whose hands built these early passenger cars might well, thirty years earlier, have been mounting stage coach bodies on crude running gear for the first locomotives to haul. And they may have turned to their sons and said, "You will never see such changes in railroading as we have seen!"

It is difficult to conceive that little more than a hundred years lie now between us and the origin of railroading in this country, that less than three-quarters of a century largely spans the great history of this country's railroads as a prime factor in the building of the greatest nation in the world.

In much of this vast economic advance we, and our predecessor companies, have been privileged to play a vital part. To have aided in the bringing of the railroad to countless isolated communities. To have helped in the opening of wider markets, the creation of great cities, the development of new industries, the tapping of distant sources of national wealth.

And with each generation the advances in railroading have become greater. Time after time the summit has been cast back into oblivion by some newer design, some better method of construction. As we now trace the development of modern railroad rolling stock we take pride in noting how many of the significant improvements are associated with the name of **A.C.F.**

In collaboration with three great railroads, **A.C.F.** is now developing types of passenger equipment which, we confidently believe, will be hailed by the public as setting the highest standards yet attained in safety, comfort, and luxury.

MORE FOR YOUR MONEY—Cars bearing the mark of **A.C.F.** are the product of the oldest, largest, and most experienced car builder in the world. The designs of **A.C.F.** bring you new beauty and luxury—and new economies, as well. The **A.C.F.** 3-car train here shown is a completely new type designed for luxury service at lowest possible costs. At the present moment **A.C.F.** is building two most advanced 6-car streamliners for the Missouri Pacific; luxurious diners for the Pennsylvania; and "Coaches of Tomorrow" for the D. & H.

AMERICAN CAR AND FOUNDRY
NEW YORK • CHICAGO • ST. LOUIS • CLEVELAND

a.c.f.



TOURNEE
PHILADELPHIA - PITTSBURGH - ST. PAUL - SAN FRANCISCO

OVER THIRTY YEARS
OF SERVICE STUDIES

AND LABORATORY
RESEARCH ARE BACK
OF THIS DRAFT GEAR

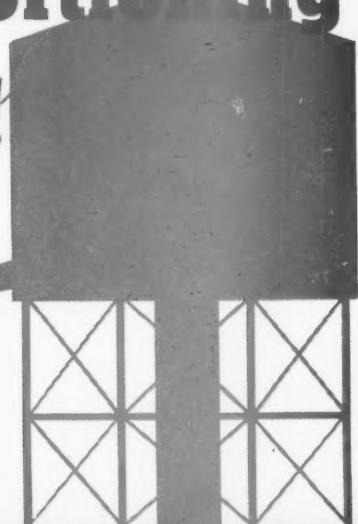
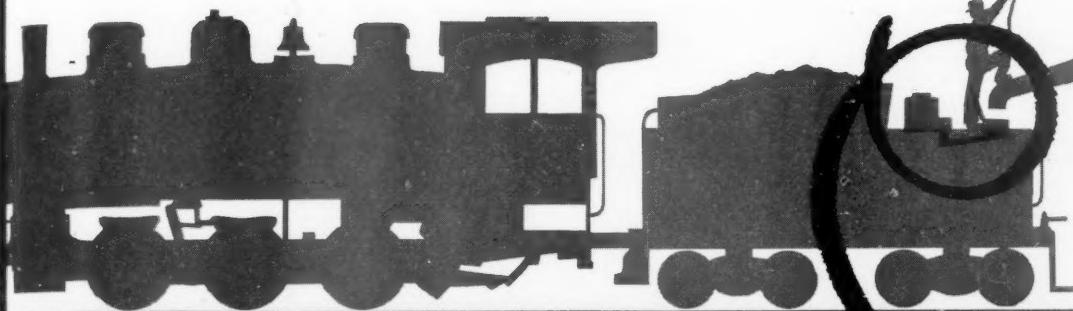
CARDWELL L-25 SA DRAFT GEAR

CERTIFIED A. A. R.

The Cardwell L-11-S gear is comprised of the same parts as the L-25-SA gear except the housing, which is arranged to fit an 18½" pocket.

CARDWELL WESTINGHOUSE CO., CHICAGO
CANADIAN CARDWELL CO., LTD., MONTREAL

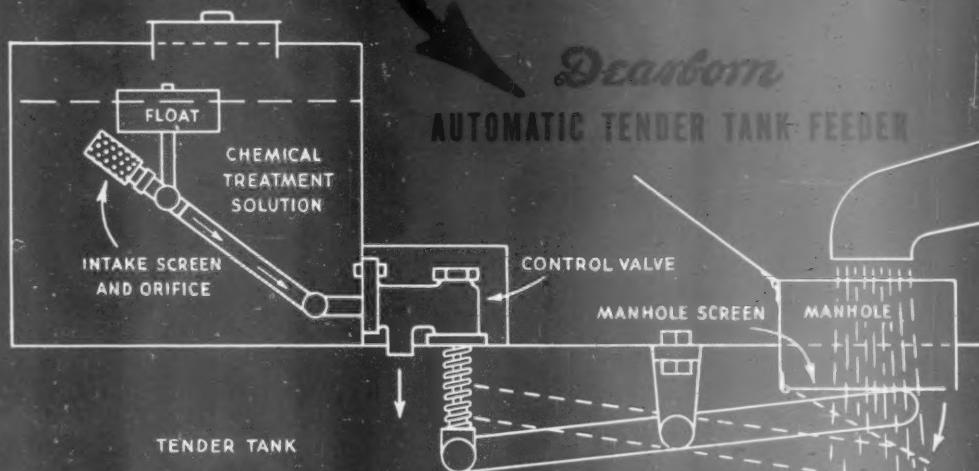
NOW you can enjoy Automatic Chemical Proportioning on ALL your Locomotives!



On many switchers, belt line engines, and other locomotives, it is not practical or economical to feed chemical treatment automatically from wayside plants. Yet with uncontrolled hand feeding, there is either wasteful overdosage or scale and corrosion due to underfeeding.

Now you can obtain accurate chemical proportioning on all your locomotives with the Dearborn Tender Tank Feeder.

These feeders are saving one Class I railroad 66 lb. of coal per switch engine hour and are eliminating about 38% of the shop overtime work. Protect your locomotives with this automatic proportioning feeder. You'll find the investment surprisingly low. Write for data.



The Dearborn Tender Tank Feeder consists of a chemical tank, control valve, and actuating mechanism, all mounted on the tender. As water is taken from the wayside tank or water column, it depresses the manhole screen and unseats the control valve, allowing the treatment to flow into the tender tank. The treatment flows only while the tender is being filled.

ADVANTAGES OF THE DEARBORN AUTOMATIC TENDER TANK FEEDER

AUTOMATIC Treatment is fed only when water is taken. Handling by engine crews is eliminated.

ACCURATE An orifice on the control valve accurately proportions the treatment to the water.

ECONOMICAL With hand feeding methods, a larger dosage is needed to guard against undertreatment. Because the feeder permits more accurate feeding, less treatment has to be used.

DEPENDABLE There is nothing to go wrong on this simple feeder. It will operate for years.

LOW IN COST The cost of the feeder is low and will be quickly returned in savings.

DEARBORN CHEMICAL COMPANY



310 S. Michigan Ave.
CHICAGO

807-815 Mateo St.
LOS ANGELES



Dearborn
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305 E. 42nd St.
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TORONTO

AUTOMATIC TENDER TANK FEEDER

First-

**ALL FUSION WELDED BOX CAR—
LIGHT WEIGHT, of Course**

66 TONS PAY LOAD

BUY CAPACITY, SAVE HAULING EXPENSE

Mechanical Division Men, Engineers and Car Men Cordially
Invited to Inspect Car at Their Convenience



Nearly Forty Years Experience in Progressive
Service to Railroads and their Customers

DESIGNERS AND BUILDERS OF
ALL TYPES OF FREIGHT CARS

**General American Transportation
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135 SOUTH LA SALLE STREET • CHICAGO

SAVE MONEY BY USING

Designed to reduce
Maintenance Expense



A simple and economical truck for
modern freight cars.

Over eight years of service on
many roads have established
a record for economical
operation.

Quicker Wheel Change
No Lost Springs
Self Squaring

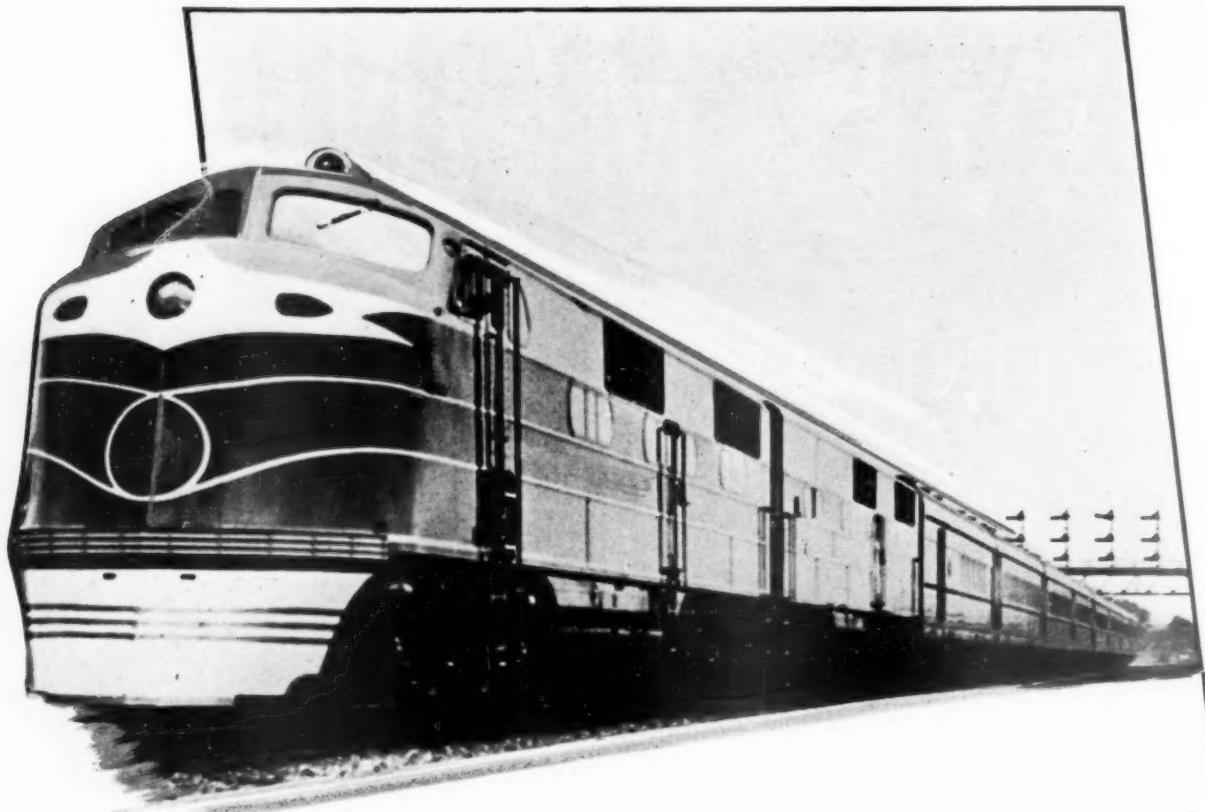
NATIONAL
TYPE B
SPRING
PLANKLESS
TRUCKS

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco
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Canadian Representatives: Railway and Power Engineering Corporation, Ltd., Toronto and Montreal



"Sixty Per" **isn't fast now!**

"Mile A Minute" speed was once considered peak performance on the fastest passenger runs.

Today it's different! Diesel powered Streamliners flash 'cross country in long non-stop runs at sustained speeds which make "60 per" sound slow.

On these runs, diesel motor support bearings, main and connecting rod bearings must take terrific punishment . . . the kind that ordinary bearing metal can't take!

That's why Satco Metal is being used for this severe service. Satco Metal has greater hardness at above normal temperatures. It has a lower coefficient of friction and superior bondability to steel or bronze backing metal.

*Engineering, Laboratory and Service Test Data will be gladly furnished upon request.



Satco-lined Diesel
Engine Connecting-
Rod Bearing with
Steel Back.

MAGNUS METAL CORPORATION
CHICAGO

NEW YORK

40,000 CARS

now running on spring plankless
trucks are equipped with

**SCHAEFER CONNECTIONS and
SCHAEFER LEVERS of STANDARD
DIMENSIONS • $5\frac{1}{2} \times 11$ and 7×14**

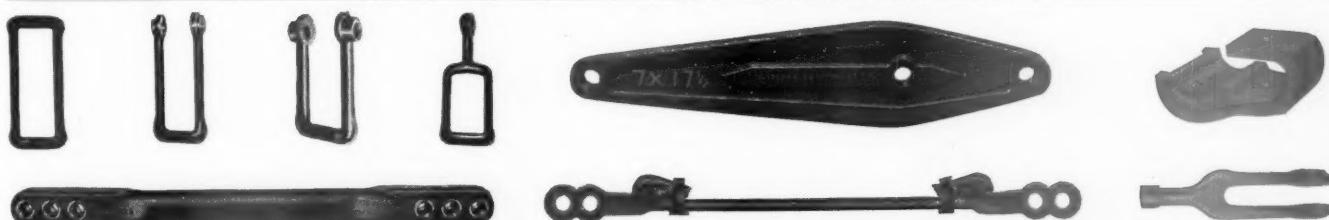


LIGHT WEIGHT WITH
HIGH STRENGTH AND SAFETY

Why? Because Schaefer Foundation Brake Gear Details are designed to provide the very features which now are important requisites in building modern freight cars. By eliminating excess metal, weight is reduced—as much as 100 pounds per car. By drop-forging quality steel into unique Schaefer designs, uniform high strength results and insures safety. By placing reinforcement at points of greatest wear, long life is obtained with resultant low yearly cost.

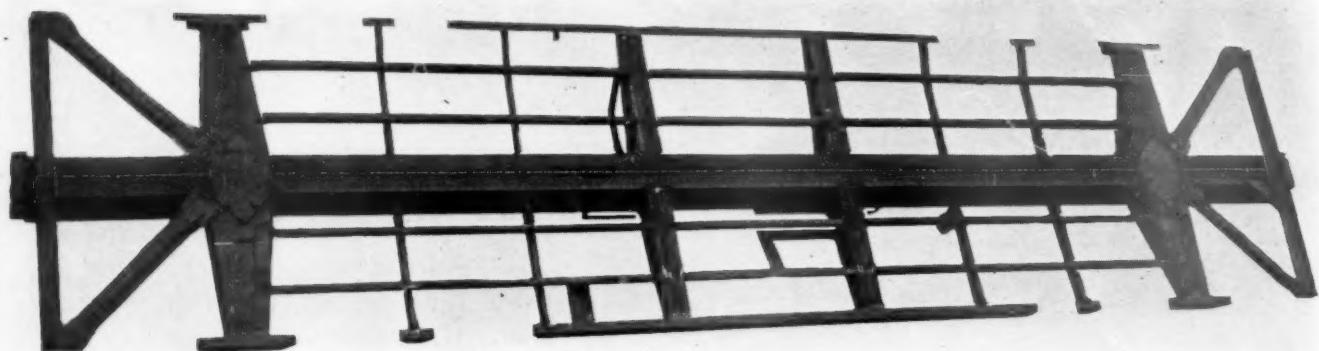
Your freight cars will be better cars—your costs will be lower—when you equip with Schaefer Details.

SCHAEFER EQUIPMENT COMPANY
GENERAL OFFICES: KOPPERS BUILDING, PITTSBURGH, PA.



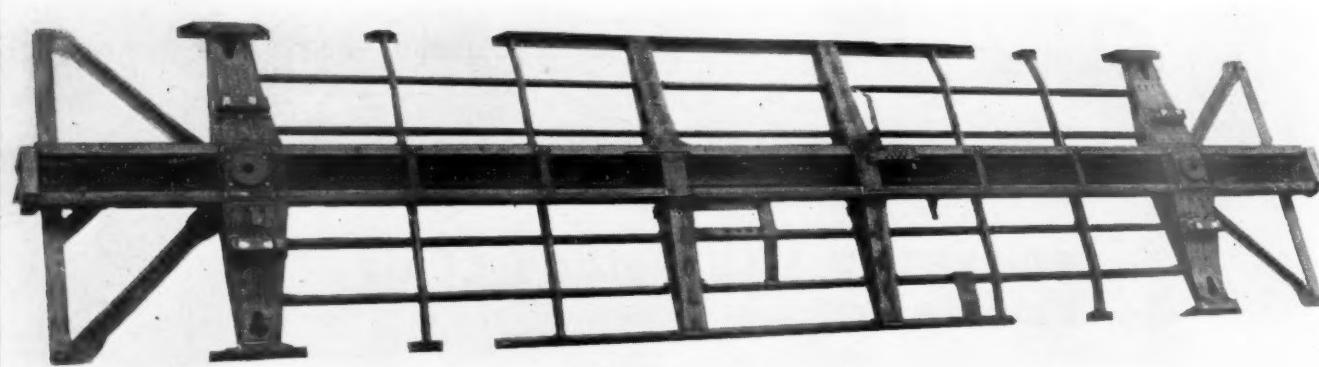
LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS . . . TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS . . . BRAKE ROD JAWS . . . WEAR PLATES . . . BRAKE SHOE KEYS

ALL-WELDED UNDERFRAMES for 50 TON BOX CARS



TOP VIEW

The MT. VERNON CAR MFG. CO.
Is Now Building
2,000 ALL WELDED UNDERFRAMES
from High Tensile Alloy Steels
for a Major Western Railroad
for Simplicity, Lightness and Strength these Frames are Exceptional



BOTTOM VIEW

"50 YEARS AT THE GAME"

MT. VERNON CAR MANUFACTURING CO.
MT. VERNON, ILLINOIS



EDGEWATER

ROLLED STEEL WHEELS
ARE USED ON THE
LOCOMOTIVE OF TOMORROW



EDGEWATER STEEL COMPANY
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Sales Offices: ATLANTA BALTIMORE BOSTON CHICAGO KANSAS CITY LOUISVILLE NEW YORK
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- Light Weight
- Self-Contained
- Easily Applied

A. A. R. APPROVED

PEERLESS

Type H-1 DRAFT GEARS

Individually Tested for
CAPACITY — TRAVEL — ACTION

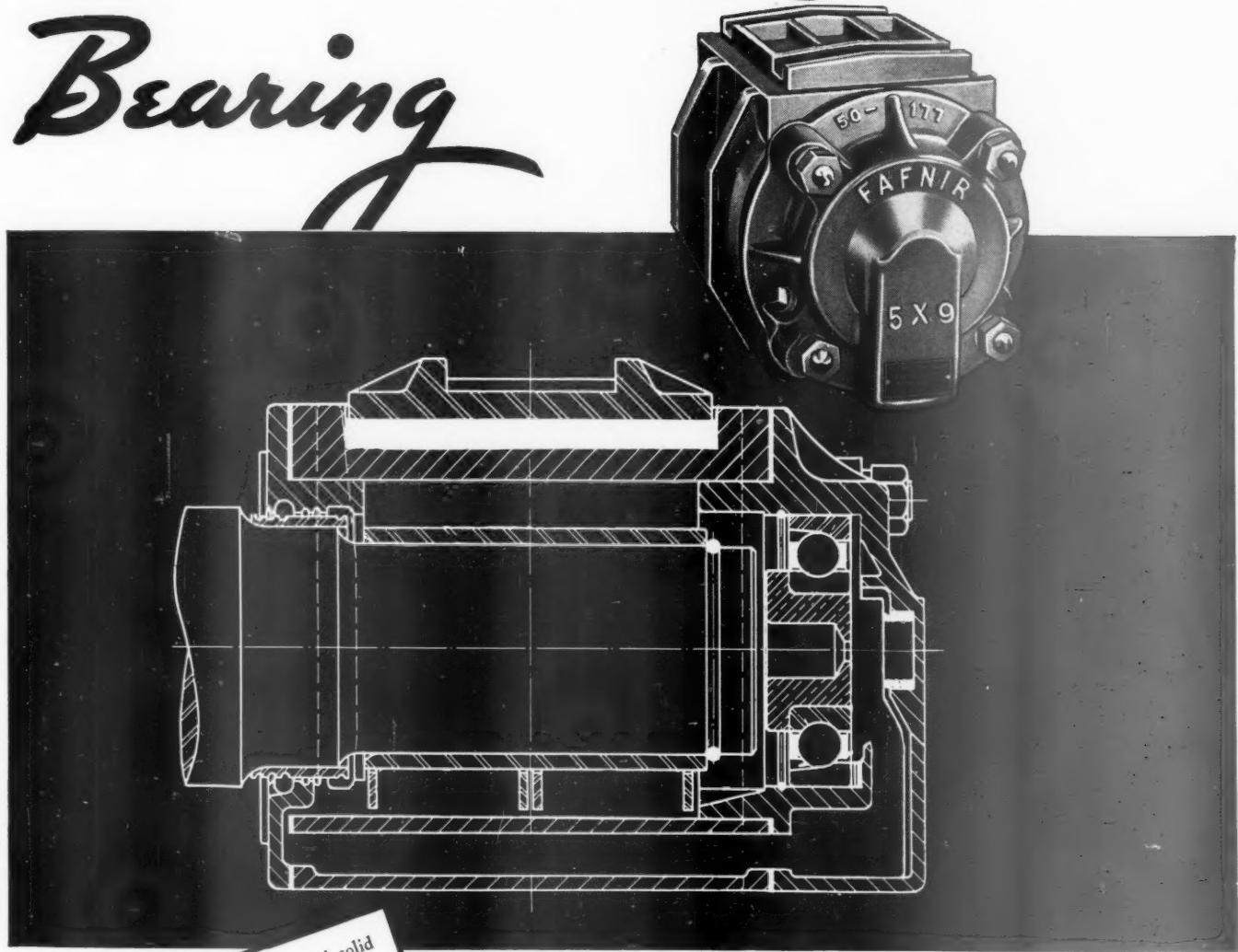
PEERLESS EQUIPMENT COMPANY

310 SOUTH MICHIGAN AVE.

CHICAGO, ILLINOIS

In Canada - THE HOLDEN COMPANY, LTD.

The Only Combination Ball and Roller Journal Bearing



Capacity — through hardened solid rolls which distribute the load
Lubrication — positive at all speeds
Durability — hardened cast steel housing, reversible for double wear (Furnished for either standard or wide pedestal openings)
Simplicity — easy to apply on present trucks and axles
Insulation — heavy rubber pad deadens noise, improves ride

For your journals, you want more than load capacity . . . more than frictionless performance. Fafnir gives you these extra values, too: Easier assembly and disassembly for wheel changes . . . Free lateral axle movement . . . Maximum thrust-capacity ball bearings *in addition to the roller bearings*, to take the thrust loads imposed on high-speed curves . . . Thrust taken at end of axle. * * * These are exclusive advantages, available in only one anti-friction journal unit: *Fafnir*. Write for complete information and specifications. Fafnir Bearings, Inc., New Britain, Conn.

FAFNIR BALL & ROLLER JOURNAL BEARINGS
REDUCE STARTING LOADS UP TO 90% • • • CUT MAINTENANCE COSTS TWO-THIRDS

NEW ORDERS



Repeat orders for Revolving-Reclining Chairs of this type were recently placed by the Missouri Pacific and New York Central.

SELECTED
FOR NEW AND
MODERNIZED
CARS
BY SEVEN
MAJOR
RAILROADS

NEARLY
2,000

Seats Delivered
or Ordered
This Year

PROVE SUCCESS OF ADVANCED DESIGN IN PASSENGER CAR SEATS

The outstanding performance of Transportation Seat Company's lighter, stronger, simpler revolving-reclining seats has resulted in steadily increasing acceptance by major railroads.

Riding comfort is increased, styling is finer, and the patented construction of mechanism allows seats to rotate independently on 40-in. centers with minimum clearance at the wall. The necessity of pulling the seat away from wall is eliminated.

Mechanism is rugged, simple and of few parts.

Parlor — Chair — Lounge and Dining Car Seats sold through the Railroad Contract Division of Marshall Field & Company, Chicago, Ill.

TRANSPORTATION SEAT COMPANY

McCormick Building, Chicago, Illinois

PLANTS: OAKLAND, CALIFORNIA — MANSFIELD, OHIO — TOPTON, PENNSYLVANIA

GOOD ENOUGH for the WORLD'S FINEST

Pittsburgh Seamless

LOCOMOTIVE TUBES



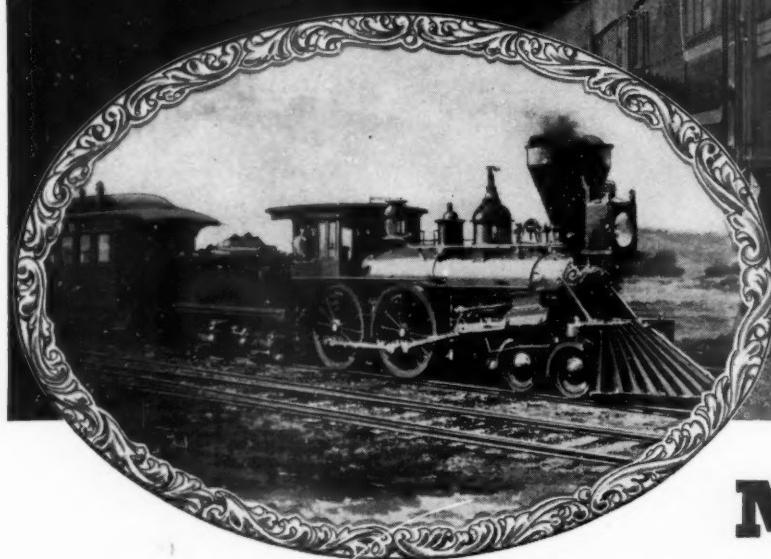
In this masterpiece, representing the ultimate in modern steam locomotives, it is significant that only *seamless* was used for the tubular members. We are proud that Pittsburgh Seamless Boiler Tubes and Superheater Flues were selected for the "heart" of this superlative mobile power plant.

PITTSBURGH STEEL COMPANY, PITTSBURGH, PA.

Pittsburgh Seamless

BOILER TUBES • HEAT EXCHANGER TUBES • CONDENSER TUBES • POWER PIPING

**TODAY....it takes more than
streamlining to
make your trains
really modern**



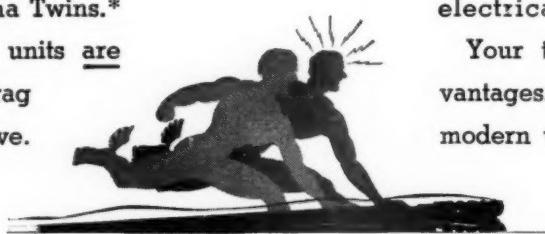
**MODERNIZE
with the WAUKESHA TWINS***

It takes more today than just stream lines on locomotives and cars to make a train "modern." Its equipment throughout must embody every modern feature of design.

For the air conditioning, and the electric generators, that means the Waukesha Twins.* These independently powered units are really modern. They impose no drag on either the axle or the locomotive.

Right now, four of America's latest "streamliner" trains are being Waukesha Twin equipped. Each and every car, on all four of these famous-name trains, will have Waukesha independently operated and fully automatic air conditioning and electrical supply.

Your trains can have these same advantages. Profit by their example. Go modern with the Waukesha Twins.



***THE WAUKESHA
TWINS**

(left) The Waukesha Ice Engine Refrigeration Unit.

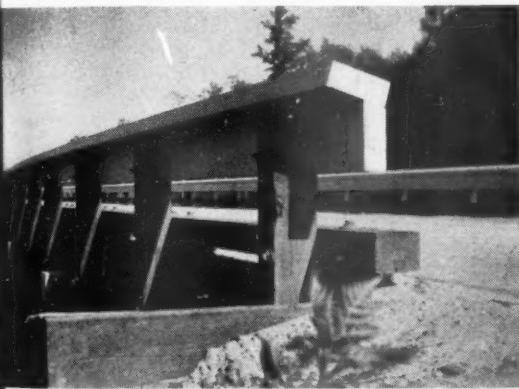
(right) The Waukesha Engine-Generator Unit.



KOPPERS

DOES A BETTER JOB

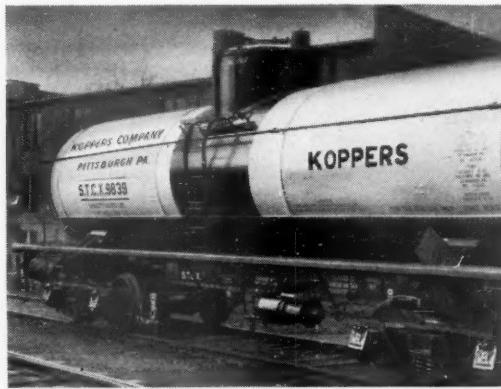
FOR YOU



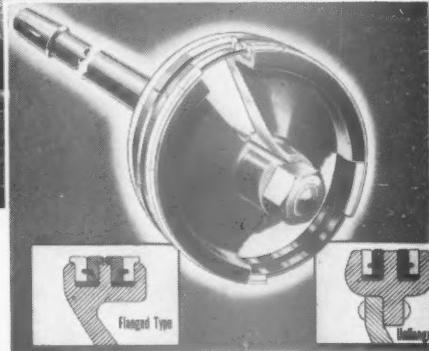
1. PRESSURE-TREATED TIMBER BRIDGE SAVED \$21,000. This bridge (built of timber pressure-creosoted by The Wood Preserving Corporation, a subsidiary of Koppers Company) was built for \$12,700.00. The engineers in charge reported that the estimates for building the bridge of other materials as permanent as pressure-treated timber were about \$33,000.00. Let us submit figures to you on the cost of pressure-treated timbers for highway grade crossing elimination projects.



2. SLAG MAKES STEEP ROOFS FIRE-RESISTANT. Koppers has developed a steep roofing pitch which is 30° F. harder than ordinary roofing pitch. Slag can be tightly embedded in this pitch. These roofs have the additional fire resistance of slag surfaces and all the other advantages of coal tar pitch roofs, including great resistance to water and sunshine. Write for additional information about Koppers Steep Roofs.



3. KOPPERS WOULD WELCOME AN opportunity to bid on your requirements of Creosote Oil meeting all standard specifications.



Waterproofing . . . Engineering and Construction . . . Pressure-creosoted Ties, Piling, Poles, Posts and Structural Timber . . . American Hammered Piston Rings . . . Koppers D-H-S Bronze . . . Coal . . . Tarmac for Paving . . . Car Floats, Ferrys, etc. . . . Repair and Reconditioning of Coastwise and Ocean Vessels . . . Disinfectants, Insecticides (including Stock Dips) . . . Bituminous-base Paints . . . Fast's Self-aligning Couplings . . . Tank Work, Pipe, Plate Work, Special Machinery . . . Coal Handling and Coal Cleaning Systems.

4. OUTWEARS OTHER CAST IRON LOCOMOTIVE PACKING 4 TO 11 TIMES. One railroad put Koppers American Sectional Bronze-Iron Packing on 10 locomotives and put two competitive types of cast iron packing on two other groups of 10 engines each. The American Bronze-Iron Packing averages 66,000 miles as against 6,000 miles for one of the others and 14,000 for the second. Koppers American Sectional Packing is made by the American Hammered Piston Ring Division of Koppers. Let us tell you more about comparative wearing tests.

KOPPERS COMPANY • PITTSBURGH



MODERN POWER

Comes into the Picture

With traffic limited and many operating expenses fixed, the railroad problem is to produce greater net operating income.

Here is where Modern Power—with larger drivers, greater boiler capacity, higher steam pressure, higher superheat and lower steam consumption per horsepower—comes into the picture.

Translated into terms of every-day operation, this means greater hauling capacity at speed, fewer locomotives for the same service and lower operating costs. The net result is better railroad earnings.

It takes Modern Locomotives to Make Money

THE
BALDWIN LOCOMOTIVE WORKS
Philadelphia

STEAM, INTERNAL COMBUSTION AND ELECTRIC LOCOMOTIVES
SPECIAL ENGINEERING PRODUCTS

BUCKEYE EIGHT-WHEEL TENDER TRUCK

as used on Tender of American Railroads Steam Locomotive



Equalized distribution and reduction of wheel loads of super-capacity tenders in high speed locomotive service has been accomplished efficiently by the above illustrated Buckeye Equalized Tender Truck, due to:

- 1 Increased number of wheels.
- 2 Positive equalization under all track conditions, avoiding excessive individual wheel loads.
- 3 Flexibility transversely as well as vertically, permitting trucks to negotiate curves without undue flange pressure and journal thrust.
- 4 Elimination of unnecessary dead weight by the use of Grade "B" Steel castings and the simplified "Buckeye" equalizing means and spring suspension.

★ Note:—

The above tender trucks are displayed behind the World's largest, fastest, and most powerful locomotive, at the American Railroad's Exhibit, New York World's Fair.

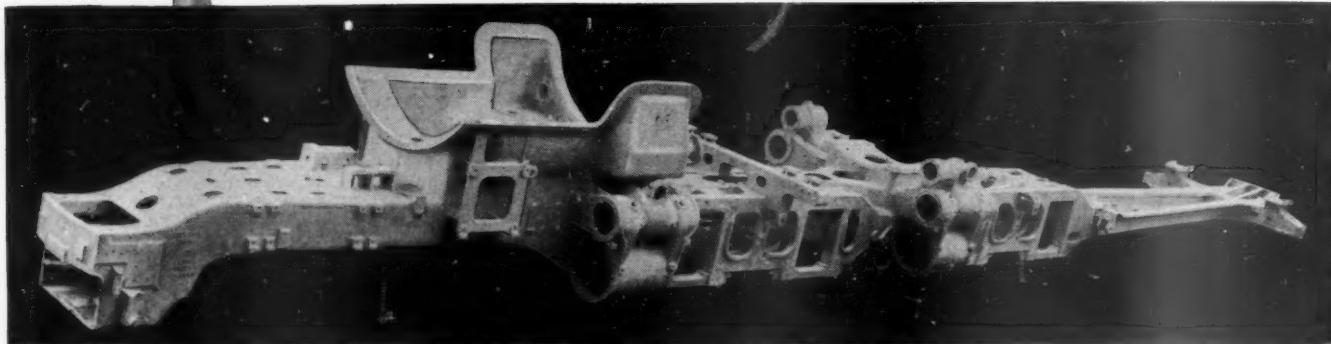
THE BUCKEYE STEEL CASTINGS COMPANY

New York, N. Y.

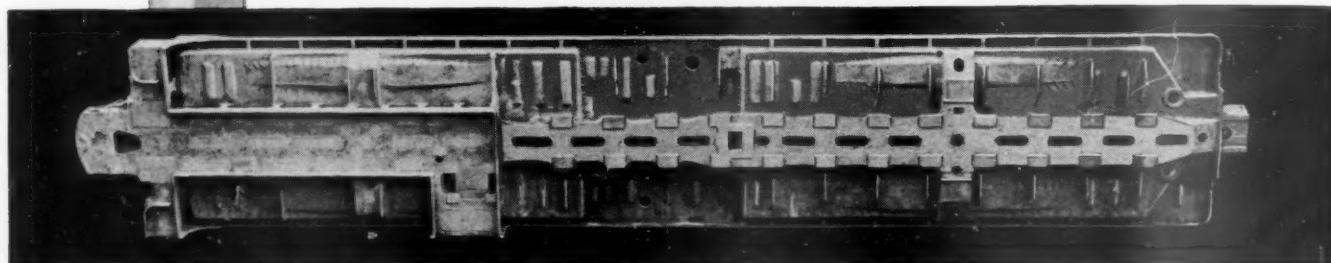
Columbus, Ohio

Chicago, Ill.

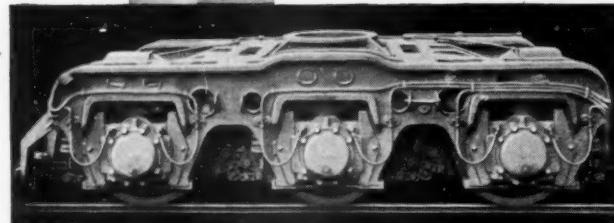
New COMMONWEALTH



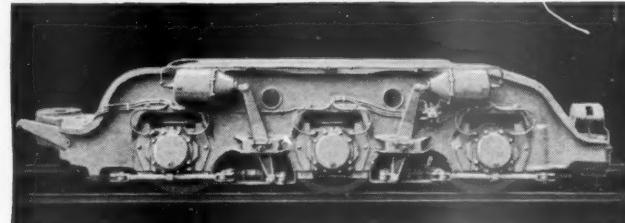
LOCOMOTIVE BED



WATERBOTTOM TENDERFRAME—TOP VIEW



ENGINE TRUCK (6-WHEEL TYPE)



DELTA TRAILER TRUCK (6-WHEEL TYPE)

COMMONWEALTH

ONE-PIECE LOCOMOTIVE BED
WATERBOTTOM TENDERFRAME
SIX-WHEEL ENGINE TRUCK
SIX-WHEEL TRAILER TRUCK

ON THE AMERICAN RAILROADS
6-4-4-6 TYPE LOCOMOTIVE

GENERAL STEEL CASTINGS

EDDYSTONE, PA.

GRANITE CITY, ILL.

ONYWF

DEVELOPMENTS...

For THE LOCOMOTIVE OF TOMORROW

PROVEN by performance on thousands of locomotives in operation for many years, COMMONWEALTH PRODUCTS are destined to play a major role on the power of tomorrow.

Built by the progressive Pennsylvania Railroad, this new 6-4-4-6 type locomotive is the largest, fastest and most powerful of its kind in the world.

Millions of visitors at the New York World's Fair 1939 will witness this super-giant in action on a test plant.

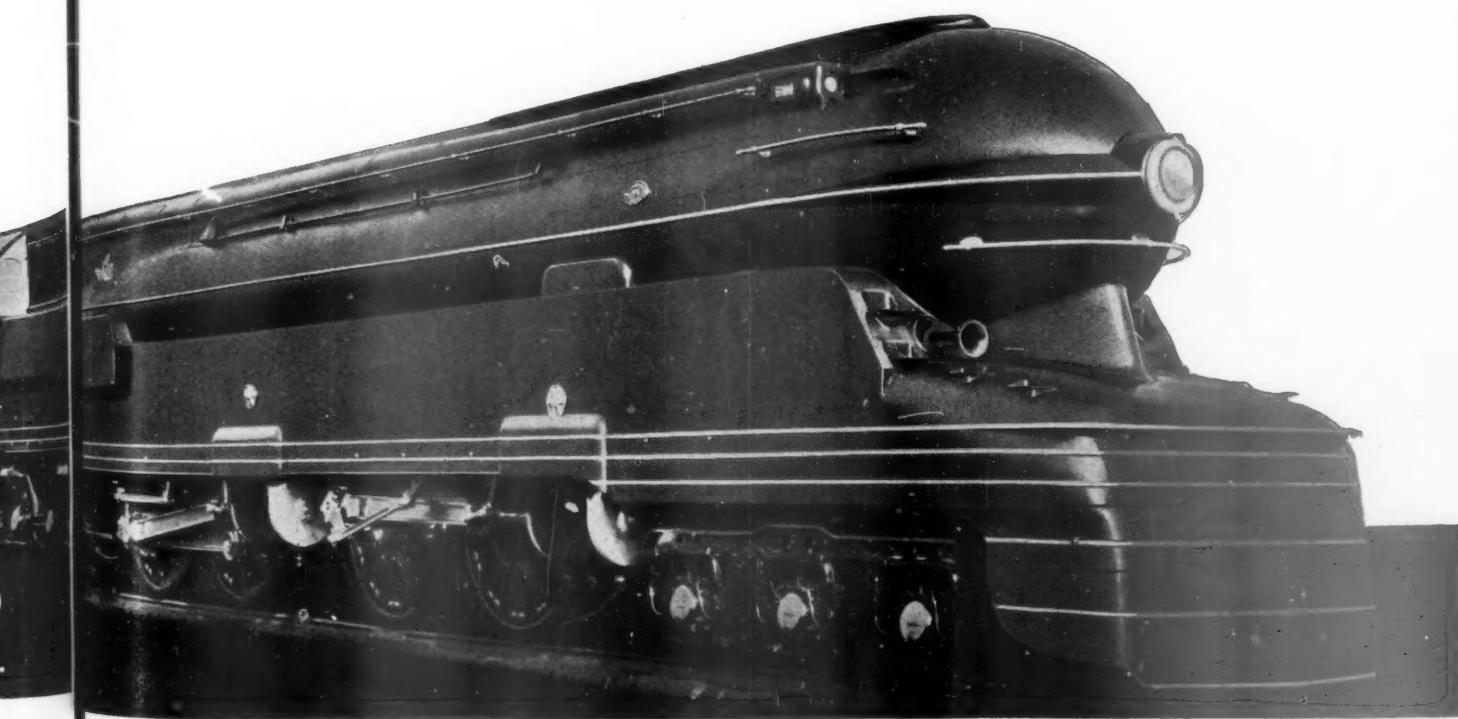
The COMMONWEALTH One-Piece Cast Steel Locomotive Bed with two sets of cylinders cast integral is the largest and most complicated ever cast.

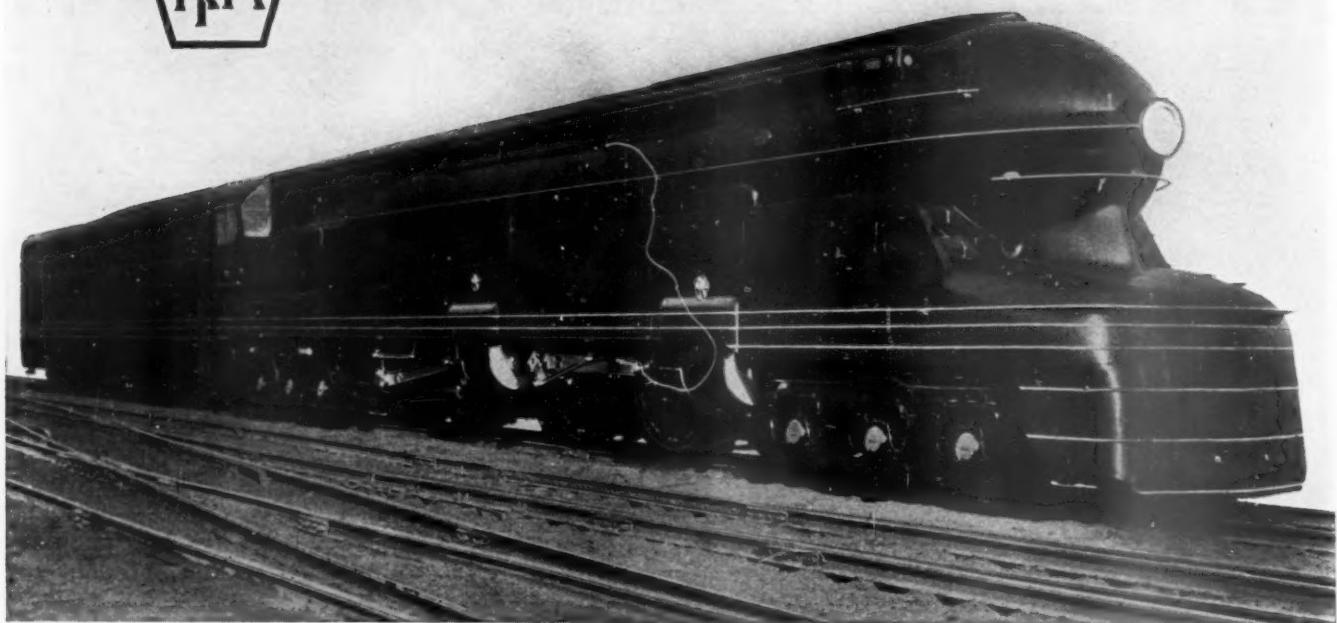
The unit construction of the bed

provides greater strength with an actual saving of several thousand pounds in weight; and assists in eliminating expensive maintenance costs of the locomotive.

The tender for this locomotive carries 25000 gallons of water and 25 tons of coal. The COMMONWEALTH one-piece cast steel waterbottom tenderframe provides lower center of gravity of tank, a saving in weight per gallon capacity, and lowest maintenance costs.

The COMMONWEALTH Engine Truck and Trailer Truck are the first of the six-wheel type, and have the truck frames in one piece, with pedestals cast integral.





**THE WORLD'S MOST POWERFUL
PASSENGER LOCOMOTIVE
COMPLETELY EQUIPPED WITH
TIMKEN BEARINGS**

AGAIN TIMKEN LEADS IN AN OUTSTANDING RAILROAD DEVELOPMENT!

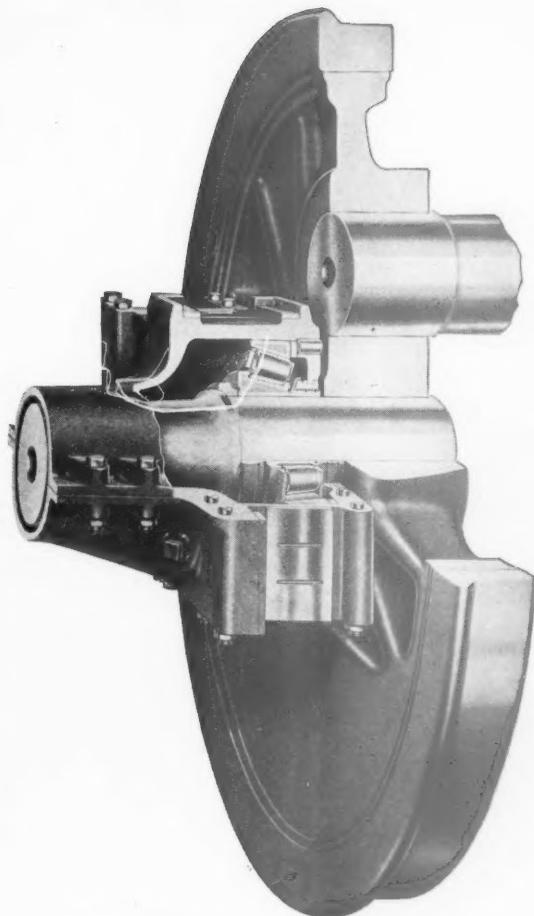
TIMKEN Bearings have had an important part in every major American railroad advancement during the last 15 years. They were the first roller bearings to be used in American transcontinental trains. They were the first roller bearings to be applied to locomotive driving axles. They were the first roller bearings to be used in American streamlined trains. And now they lead again by virtue of their selection for the world's most powerful high speed passenger locomotive—the new American Railroads class S-1 type 6-4-4-6 at present on exhibition at the New York World's Fair.

All axles of this revolutionary locomotive—engine truck, driving axles, trailer trucks and tender trucks are mounted on TIMKEN Bearings. TIMKEN Bearings also are used in the crosshead.

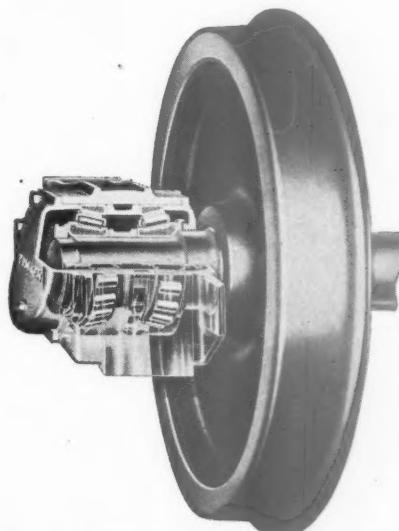
Furthermore, the light-weight reciprocating parts of the locomotive are made of TIMKEN High Dynamic Steel to Timken designs.

The TIMKEN Railway Roller Bearing is an all-American product developed and pioneered by an American manufacturer. It will give you maximum service and economy in your equipment.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO



TIMKEN Bearing Driving Axle Application as used in the new American Railroads Class S-1 locomotive.

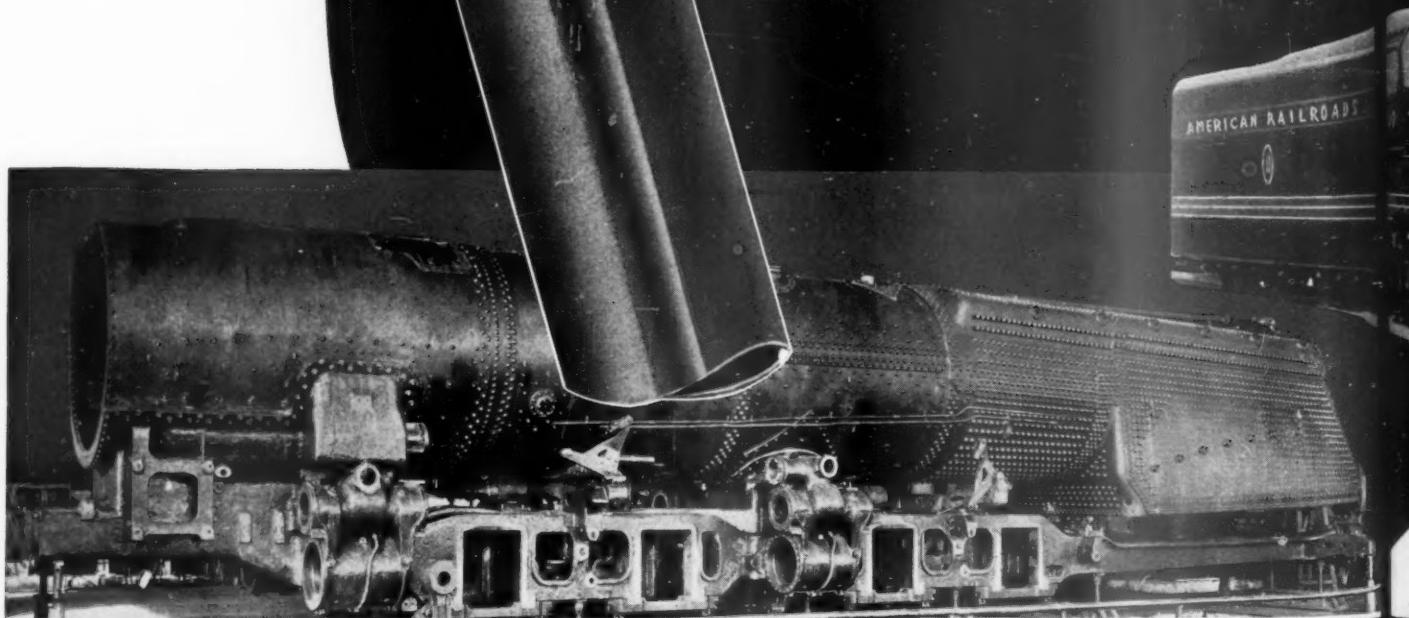


TIMKEN Bearing Engine Truck, Trailer Truck and Tender Truck Applications as used in the new American Railroads Class S-1 locomotive.

TIMKEN
TAPERED ROLLER BEARINGS



Two-Piece
HOLLOW
FLEXIBLE
STAYBOLTS



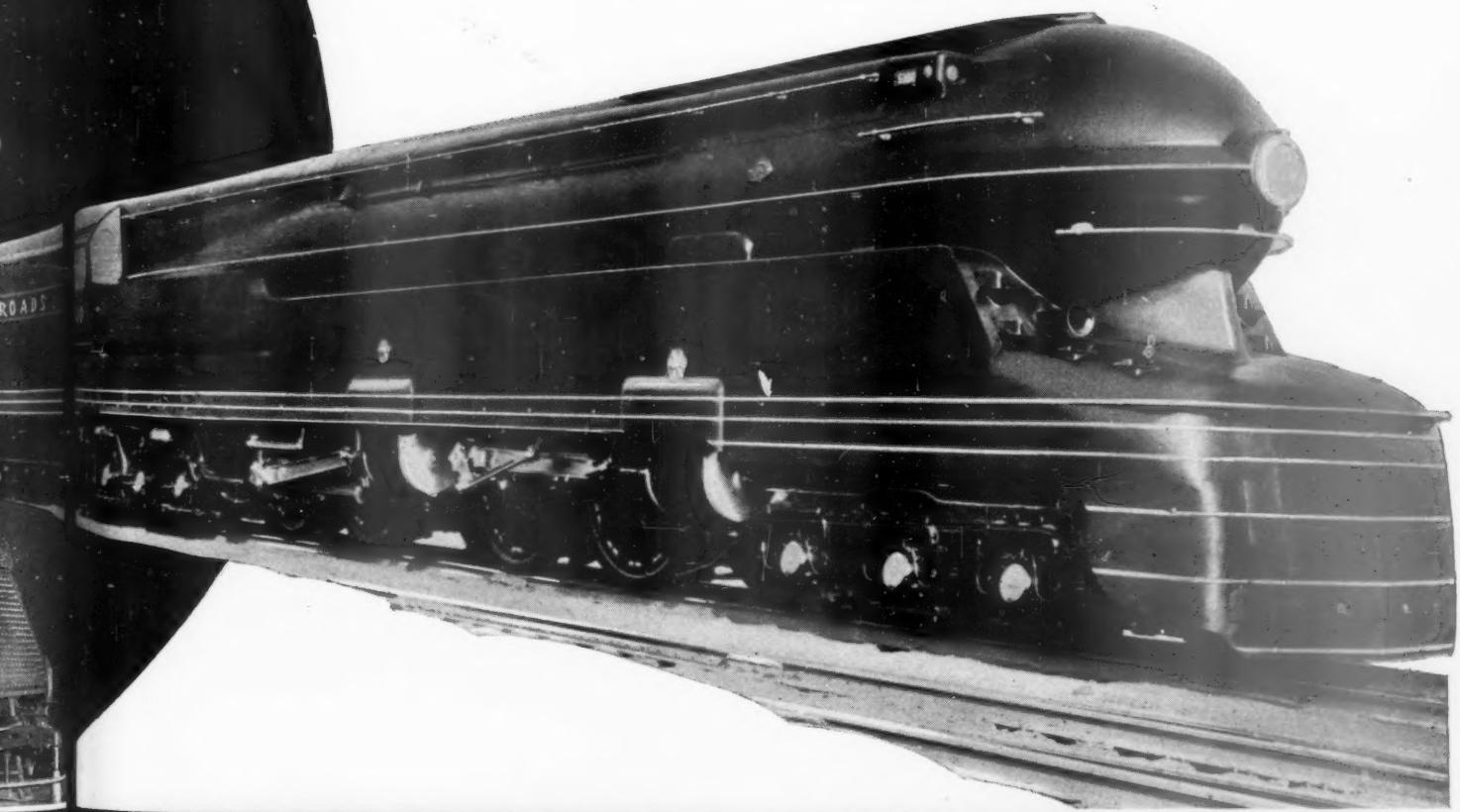
FLANNERY BOLT

Locomotive of Tomor-tow

NO exhibit at the New York World's Fair is more symbolical of the coming era than the new American Railroads' 6-4-4-6 type locomotive.

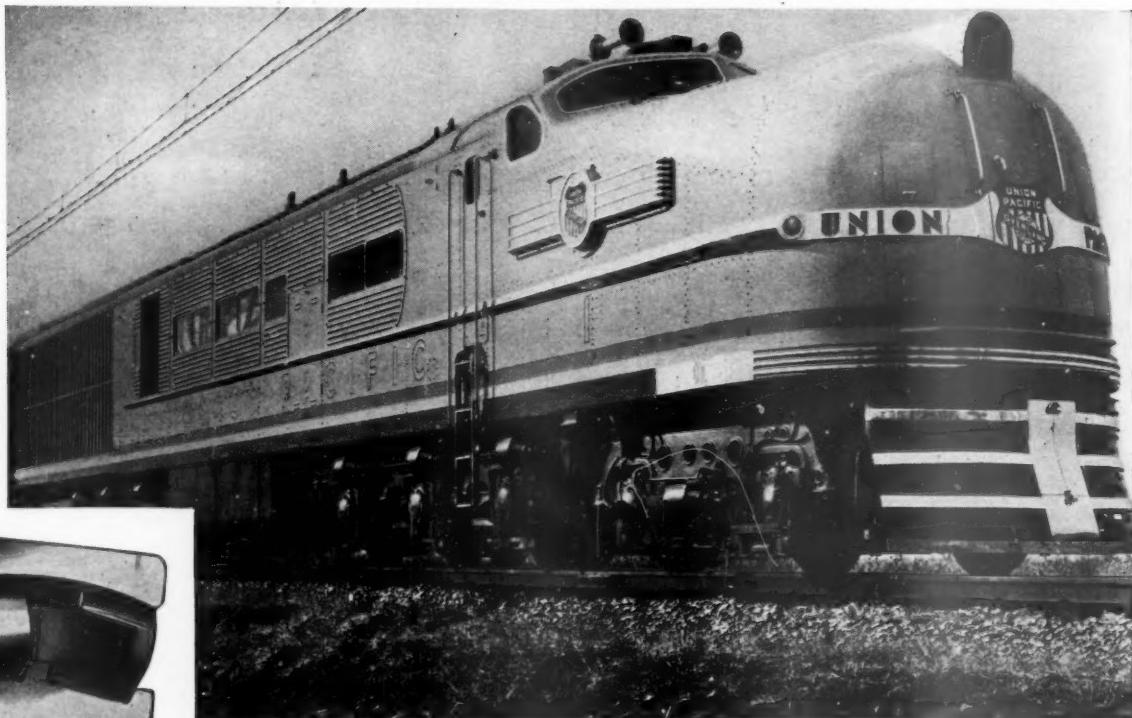
The mammoth boiler, which is designed for 300 lb. working pressure, exemplifies meticulous selection of materials and expert workmanship.

Flannery Staybolts of the Hollow Two-Piece K type especially designed for high pressures are installed in the firebox.

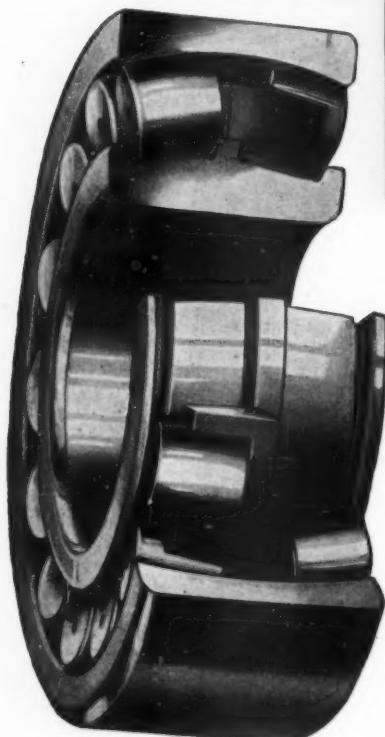


T COMPANY BRIDGEVILLE,
PENNSYLVANIA

AT THE WORLD'S



• This turbine-electric locomotive has a maximum capacity of operating 500-700 miles at speeds up to 125 miles per hour without stops for fuel and water.



AMERICA'S FIRST TURBINE-ELECTRIC LOCOMOTIVE THAT RUNS ON **SKF** BALL AND ROLLER BEARINGS

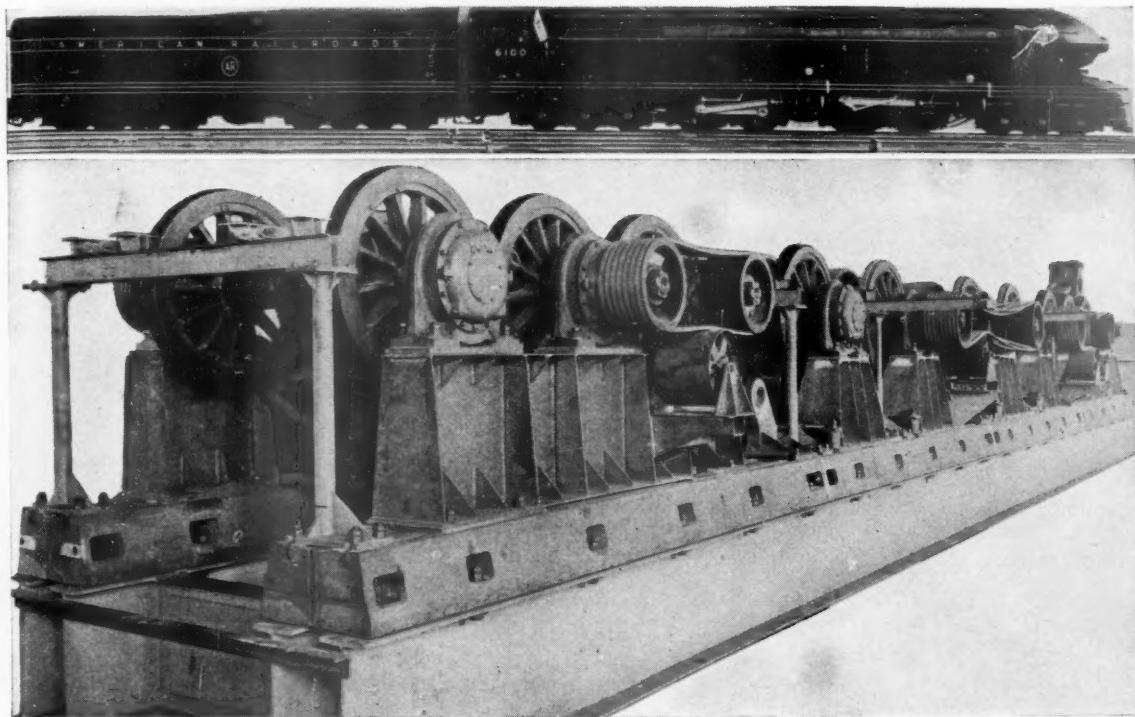
Here's another important step in the development of motive power for railroad use.

It is America's first turbine-electric locomotive and Union Pacific's latest triumph—a multiple unit 5000 H.P. locomotive designed by General Electric and Union Pacific engineers for service between Omaha and the West Coast.

It is equipped with **SKF** Bearings in leading, driving, and trailing truck journals, traction motors, and generators.

SKF
Ball and Roller Bearings

FAIR-1939!



THE WORLD'S LARGEST STEAM LOCOMOTIVE OF ITS TYPE WEIGHING 530 TONS RESTS ON AN SKF-EQUIPPED TEST STAND

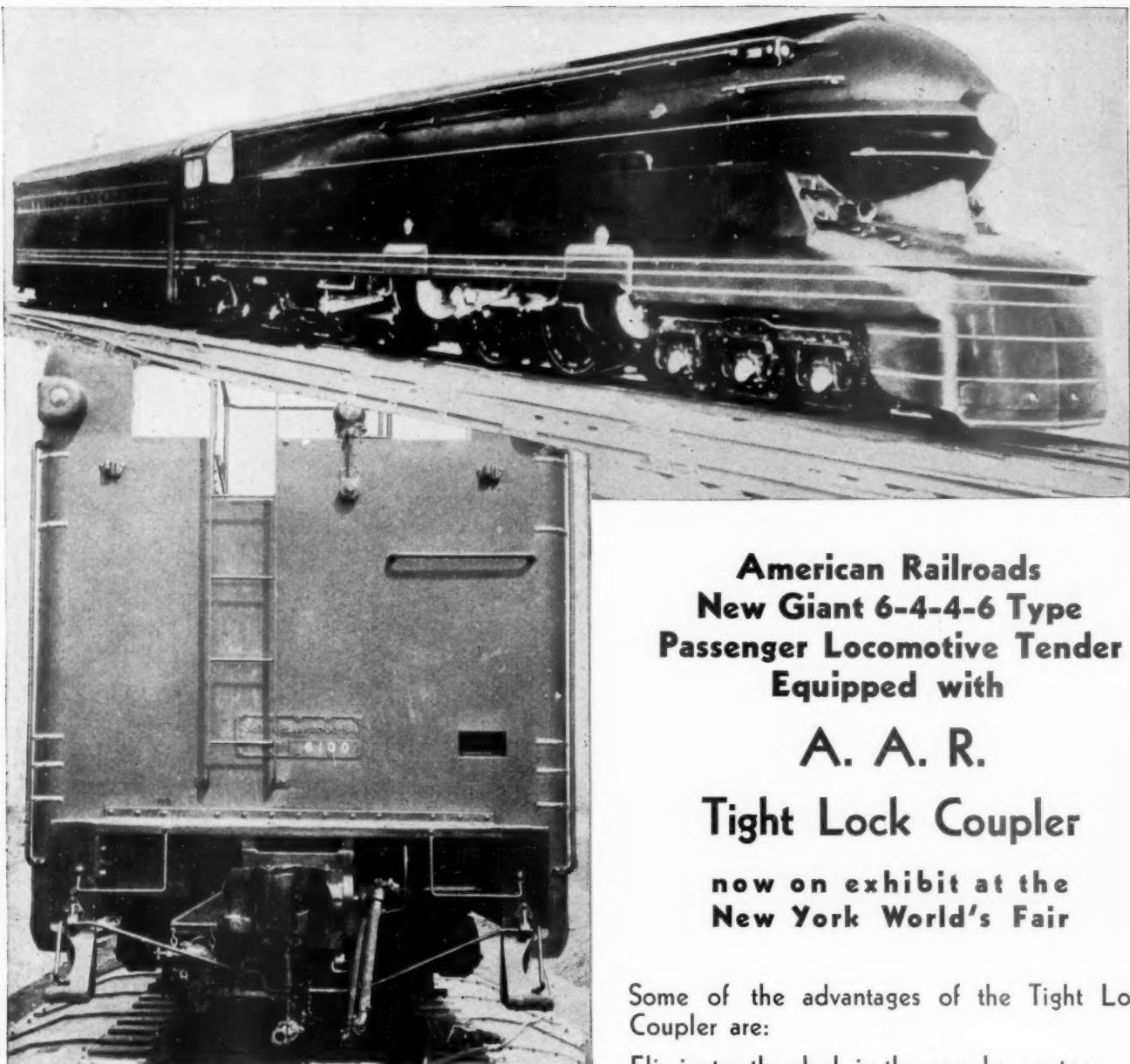
Hidden from public view in the masonry pit under the World's Largest Steam Locomotive of its type is a "treadmill" test stand which operates on 36 SKF Journal Bearings.

• This is part of the RAILROADS ON PARADE exhibit sponsored by Eastern Presidents' Conference.

These bearings support this 530-ton locomotive while running at any desired speed of rotation, the engine itself remaining stationary. SKF Industries, Inc., Front St., & Erie Ave., Phila., Pa.

4363

SKF
Ball and Roller Bearings



**American Railroads
New Giant 6-4-4-6 Type
Passenger Locomotive Tender
Equipped with**

**A. A. R.
Tight Lock Coupler**

**now on exhibit at the
New York World's Fair**



**Two A. A. R. Tight Lock Couplers
in coupled position**

Some of the advantages of the Tight Lock Coupler are:

Eliminates the slack in the coupler contour.

Will couple with present standard couplers, and when so coupled provides substantial reduction in contour slack.

Coupler is self-compensating for wear and seating of parts.

Wear of coupler head and parts is materially reduced, thus increasing the service life.

Elimination of noise caused by coupler slack.

Reduction of fatigue failures in front face and knuckle side wall.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco

Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

CONTINENTAL
*Pays Tribute
To Progress*
THE NEW
**AMERICAN
RAILROADS**
6100



TOMORROW'S TRANSPORTATION POWER

 .. *The Keystone Beauty*

The new steam locomotive exhibited at the New York World's Fair as American Railroads 6100 was accomplished by wise planning and thorough execution of every detail. The design of this locomotive was worked out by Engineers of the American, Baldwin and Lima Locomotive Companies, in collaboration with The Pennsylvania Railroad Company, which employed Raymond Loewy for the styling. It was built by The Pennsylvania Railroad at its Altoona Works, Altoona, Pennsylvania. This 140 foot — 526 ton streamliner is the result of experience gathered in billions of freight and passenger service miles. The Pennsylvania Railroad Company is making railroad history in launching the 6100 on its initial run. Their untiring efforts have borne fruit in that they have achieved not only the largest but also the fastest and most powerful locomotive in the world today.

Continental salutes the 6100 and the able organization which it represents. It is fitting also to gratefully acknowledge the opportunity to serve Pennsylvania in this great engineering venture. Continental, too, is proud of the small contributing share Continental Castings offered in the construction of the 6100.



This head-on view shows the simplicity of design that characterizes the new locomotive. The Pilot Casting which has facilities for entirely concealing the coupler is a one piece unit by Continental. It's the strong jaw of the Engine—denotes character!

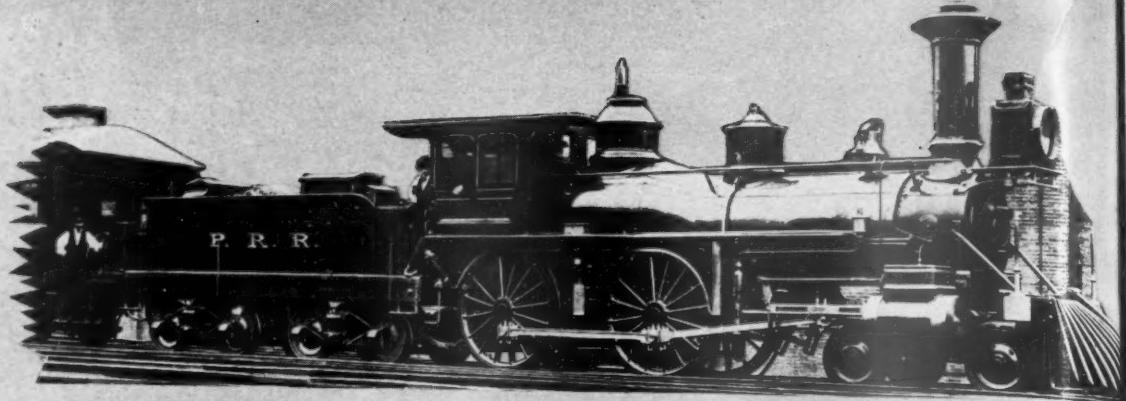
CONTINENTAL

ROLL & STEEL FOUNDRY COMPANY

CHICAGO • PITTSBURGH

UBBARD DIV., EAST CHICAGO, IND. © DUQUESNE DIV., CORAOPOLIS, PA. © WHEELING DIV., WHEELING, W. VA

*Then
and
Now*



The Westinghouse Atmospheric Brake -- 1869.

1869 - - - 1939

Seventy years ago, through cooperation of Pennsylvania Railroad officials, the Westinghouse Air Brake was given its first trial with a locomotive and four cars on the Pan Handle division. Its effectiveness as a safety device was dramatically proved by an unexpected incident that has become a classic in the annals of railroading . . . The Pennsylvania was the first railroad to purchase Air Brakes—in 1870. Throughout intervening years they have collaborated with this Company in determining the best form of Brake for a particular service and proving its value by road tests.



This giant American Railroads Locomotive is equipped with the most advanced Westinghouse pneumatic brake. It embodies all basic elements of the HSC Equipment, to which it may be readily converted when conditions demand complete electro-pneumatic operation to provide maximum precision, speed and flexibility of control.

WESTINGHOUSE AIR BRAKE CO.
General Office and Works: WILMERDING, PA.



REPUBLIC ALLOY STEEL



FOR THE
AMERICAN RAILROADS
6-4-4-6

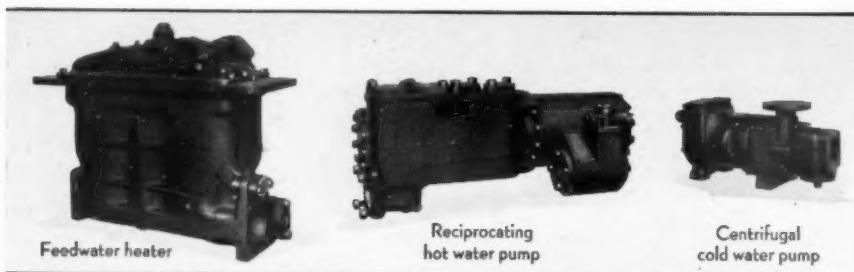
Alloy steels played an important role in carrying out the advanced design of the American Railroads' 6-4-4-6.

» » » For the valve gears, a vital part of the locomotive where dependability is essential, Republic furnished billets of nickel steel. » » » Under the severe operating conditions of high speed and heavy loads imposed by modern power, Republic Alloy Steels withstand high stresses and resist fatigue. » » » Such materials give the designer new opportunities to improve locomotive performance and reduce maintenance. Consult Republic on problems involving locomotive materials. Address Department RA, Republic Steel Corporation. General Offices: Cleveland, Ohio. Alloy Steel Division: Massillon, Ohio.

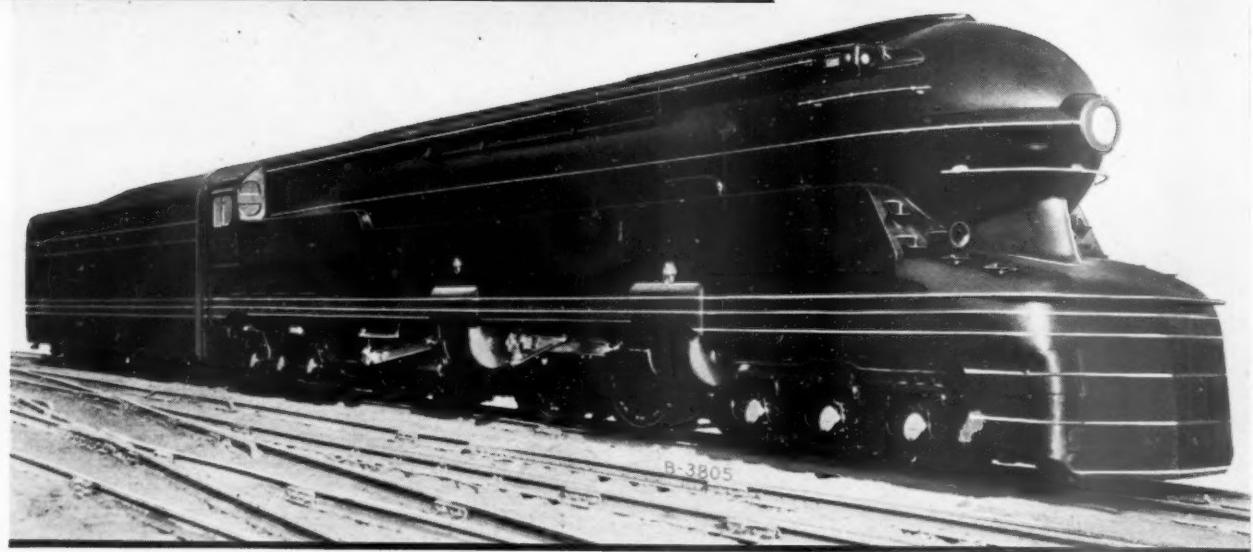


In addition to the alloy steel, Republic supplied the carbon steel billets for guides and lift shafts.

ENCURO Stainless Steel • TONCAN IRON Sheets, Plates, Pipe and Culverts • TRUSCON WELTRUS Crossings • TRUSCON Standard Steel Buildings • ELECTRUNITE Boiler Tubes • STELTUBES Conduit BERLOY Lockers, Cabinets, etc. • UPSON Bolts, Nuts, Rivets • REPUBLIC DOUBLE STRENGTH STEEL



SEE the Worthington Open Type Locomotive Feedwater Heating Equipment in operation on the American Railroad's 6-4-4-6 Locomotive No. 6100, at the New York World's Fair.



Let the Worthington Open Type Locomotive Feedwater Heater save the money for necessary requirements

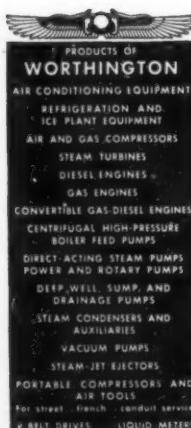
Efficient . . . economical . . . dependable . . . the annual returns are 40% to 60% on the investment.

- Perfect heat transfer
- Exhaust steam *only* . . . not live steam . . . mixes with the cold water from the tender
- No tubes to accumulate scale or soot
- Lowest maintenance of all feedwater heating equipment

Saves the *most* fuel and water
Greatest increase in boiler capacity

Speeds up train schedules
Reduces stops for water

LH9-1 Full details, and representative performance data, available on request



WORTHINGTON PUMP AND MACHINERY CORPORATION

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BOSTON
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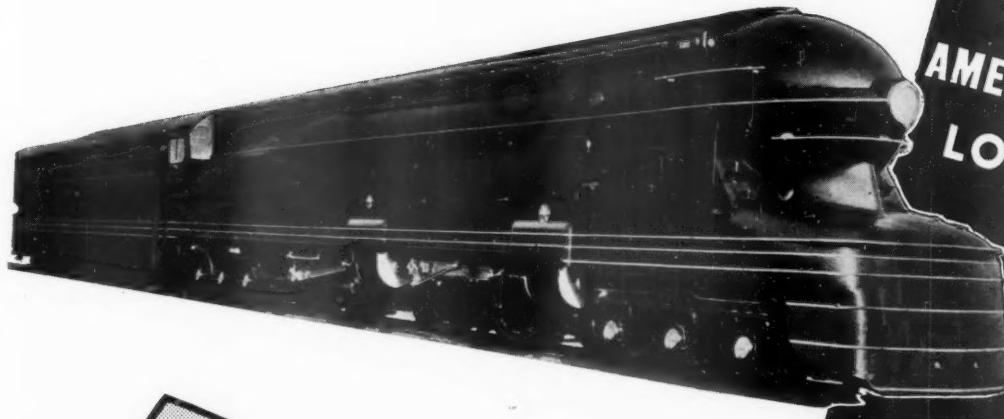
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On the New
AMERICAN RAILROADS
LOCOMOTIVE
now an
exhibition
at the
New York
World's Fair

F.M.A.

4



MODERN, HIGH EFFICIENCY INSULATING PRODUCTS

For All Piping, From the Largest to the Smallest

Railroad engineers now specify UNARCO PRODUCTS for ALL steam pipes of modern locomotives and cars, in order to provide the permanently high insulating efficiency essential to economical and satisfactory operation.

The many exclusive, patented features meet the high-speed, high-power requirements exactly. Unarco offers one-piece, flexible pipe coverings that effectively insulate curves as well as straight runs, fittings, nested pipes and pipes that are otherwise hard to insulate.

Unarco Coverings do not shake down or disintegrate from vibration, heat or handling; they are moisture and fire-proof; eliminate maintenance cost; are easily applied and re-applied without waste.

Complete descriptive bulletin on request.

Manufactured by



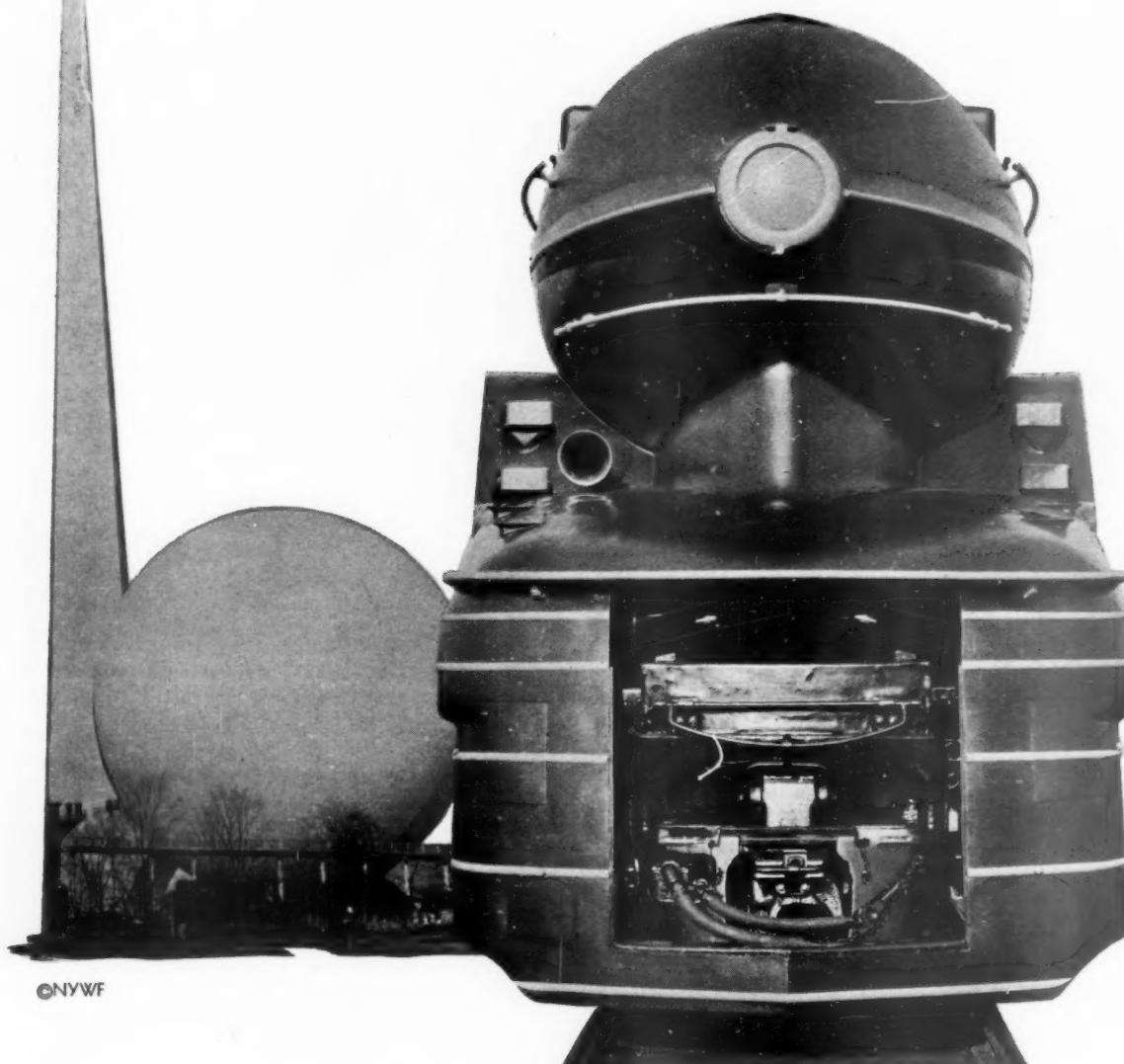
UNION ASBESTOS & RUBBER CO.

310 SOUTH MICHIGAN AVENUE

CHICAGO, ILLINOIS

THE AMERICAN RAILROADS

6-4-4-6 STEAM LOCOMOTIVE



©NYWF

NOW ON EXHIBITION AT THE
NEW YORK WORLD'S FAIR
is equipped with

**A. A. R. TYPE "E"
DISAPPEARING PILOT COUPLER**

furnished by

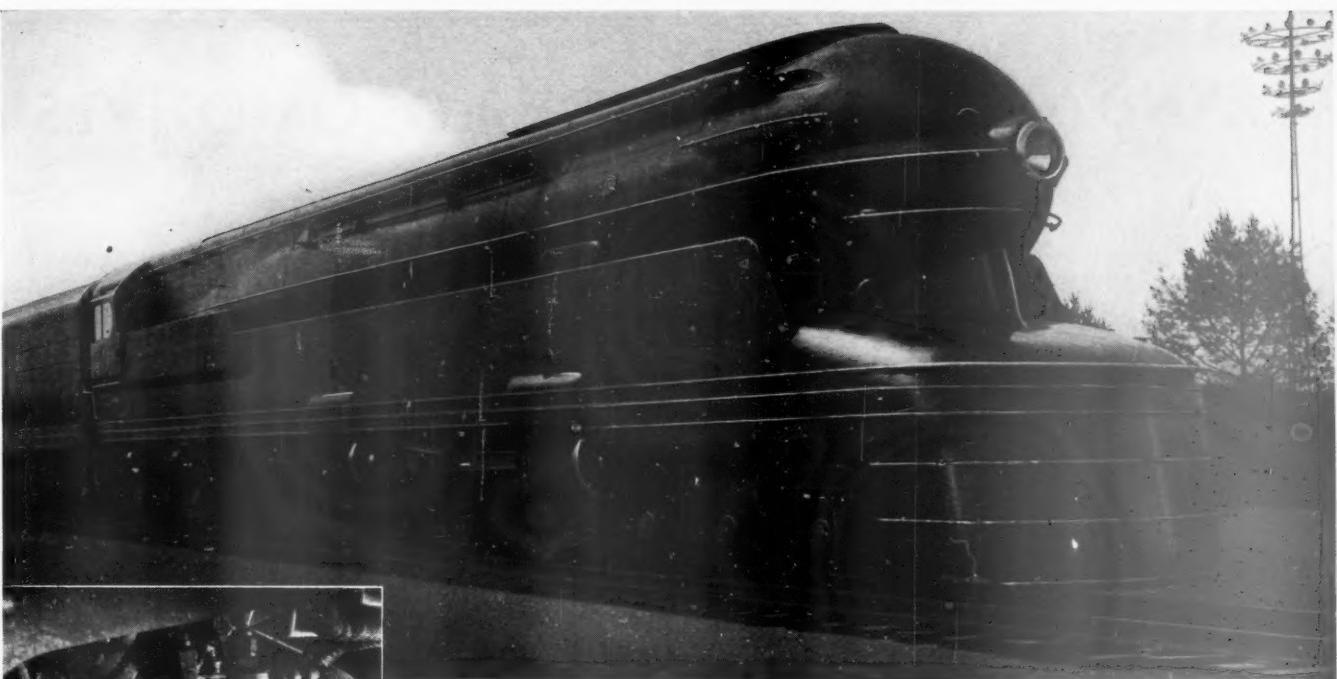
McCONWAY & TORLEY CORPORATION
PITTSBURGH, PA.

Baltimore

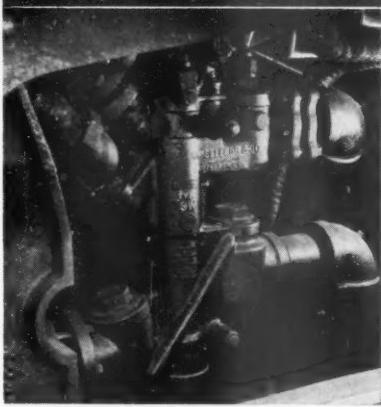
Chicago

St. Louis

San Francisco



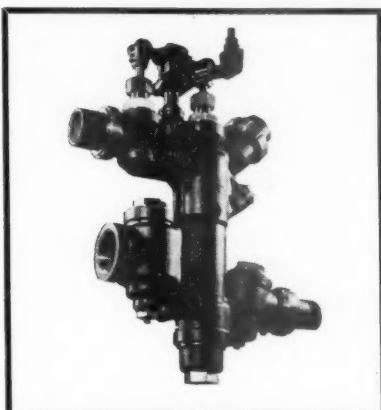
6-4-4-6 "American Railroads" Passenger Locomotive



THE Association of American Railways justly may be proud of this great locomotive—a worthy contribution to the progress of American railways.

• William Sellers & Co., Incorporated, are proud that beneath its streamline covering, this locomotive is equipped with

Sellers Type "S" Injector



A new boiler feed recommended for use on all steam locomotives

Is started, stopped and regulated Effects substantial savings
by one lever

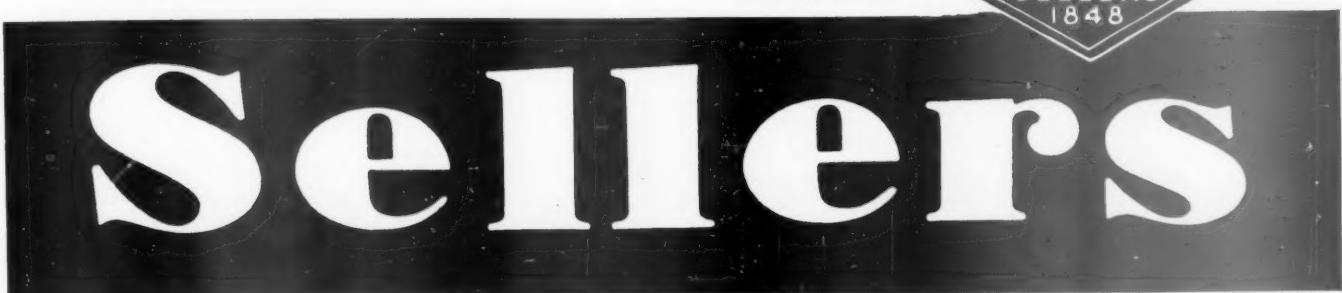
Requires no steam starting valve Prevents bulging of steam pipes
in cab

Lifting as well as non-lifting Reduces risk of boiler failure
•

Drains the water tank completely Is dependable and well liked by
when necessary engine crews

WILLIAM SELLERS & CO. Incorporated
1600 Hamilton St.

Philadelphia, Pa.



STANDARD STOKERS FOR LOCOMOTIVES

— SOLD ON REPUTATION —



STANDARD STOKERS are the result of twenty-five years' experience in the mechanical firing of locomotives.

RUGGED

DEPENDABLE

EFFICIENT

Designed to suit the job and guaranteed to fire any locomotive regardless of type, size, and coal rate.

Over 14,000 of these stokers in service on railroads all over the world.

THE STANDARD STOKER COMPANY, INC.

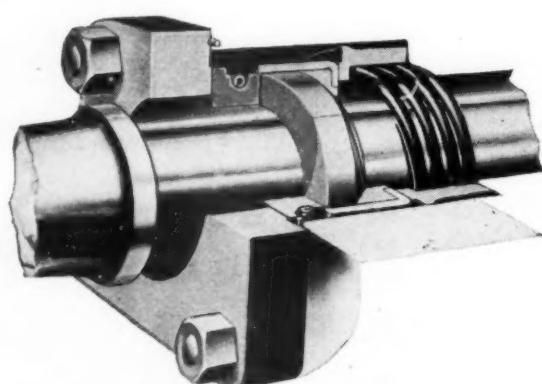
New York

Chicago

Erie

KING

PISTON ROD PACKING IS Applied to all four cylinders of the new American Railroads Locomotive.



King Piston Rod Packing

THE U. S. METALLIC PACKING CO.

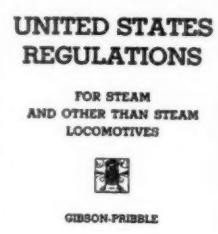
Philadelphia

Pennsylvania

Representative in Canada,
Joseph Robb & Company, Limited, Montreal

United States Regulations

FOR LOCOMOTIVES



IN One Volume is included all current Rulings, Interpretations, Tables and Forms of the Bureau of Locomotive Inspection, together with Safety Appliance Standards for Locomotives, as prescribed by the Bureau of Safety.

In this new pocket-sized book is combined the material of four government booklets on the laws and regulations covering railway motive power. Superfluous citations and obsolete material is left out so that it boils down to 219 pages, including a complete cross-index and 23 line drawings.

CONTENTS

Locomotive Inspection Law—Steam Locomotive, with Interpretations and Rulings relative thereto, quoted directly after each Rule to which applicable—Locomotives Other Than Steam—Complete Set of Sample Report Forms—Line Drawings showing limits of wear on wheels, gauges for measuring flat spots, and couplet gauges—Safety Appliance Standards—Complete Index.

219 pages, 23 illustrations, $4\frac{1}{2} \times 6\frac{1}{4}$, flexible cover, \$1.25. Special prices on quantities.

Money Back if Not Satisfactory

Book Service Department

Simmons-Boardman Publishing Corp.
30 CHURCH STREET NEW YORK, N. Y.

and Fatigue Failure

CORROSION COSTS MORE THAN WROUGHT IRON



In building this newest Class S-1 locomotive for exhibit by American Railroads at the New York World's Fair, extensive use was made of one of the earliest railroad materials . . . wrought iron.

It is interesting to note that with the new developments in railroad equipment has come an increasing use of wrought iron. This is explained when the record is consulted. Not only does wrought iron resist the varieties of corrosive attack encountered in locomotive service . . . but it also resists the fatigue that comes from constant punishing vibration. This dual re-

sistance has been demonstrated in thousands of installations, and over countless millions of engine-miles.

If you have any application where corrosion or fatigue is causing premature failure, the cooperation offered by our Engineering Service Department will be of interest to you. Knowing the details, this department will analyze the conditions involved; relate these to similar or parallel conditions encountered elsewhere; interpret the

results; and make suggestions as to material selection . . . supported by service records. There is, of course, no cost or obligation.

A. M. Byers Co., Pittsburgh, Pa.
Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

BYERS GENUINE WROUGHT IRON TUBULAR AND FLAT ROLLED PRODUCTS

Specify Byers Genuine Wrought Iron Pipe for resistance to corrosion and fatigue failure and Byers Steel Pipe for your other requirements

LUBRICATION

for the Locomotives
of Today and Tomorrow

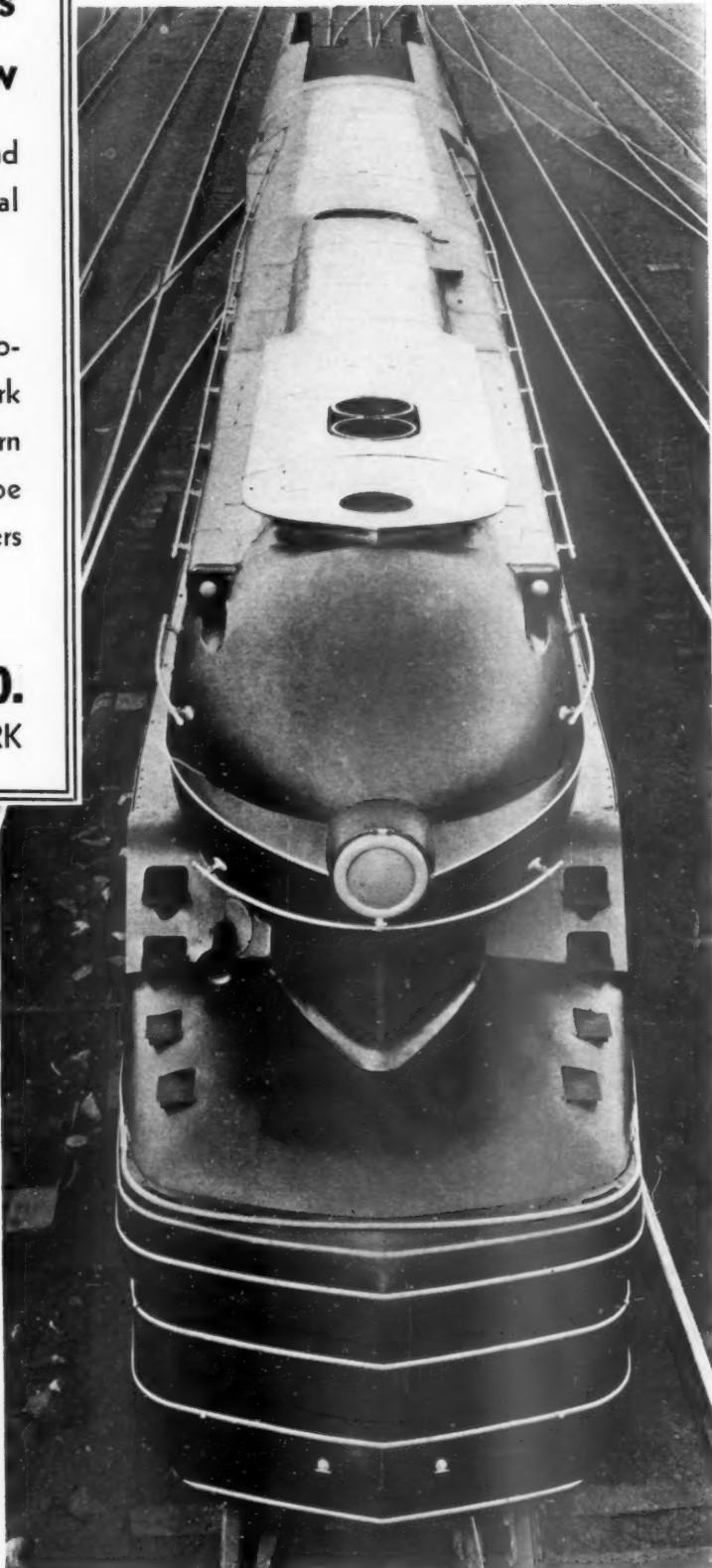
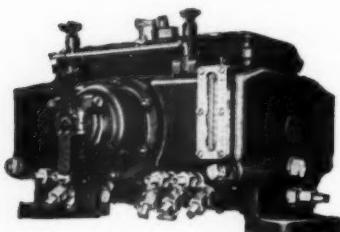
MODERN power calls for efficient and dependable lubrication of all vital parts.

The new American Railroads' 6-4-4-6 type locomotive, now on exhibition at the New York World's Fair, is but one of the many modern units equipped with the NATHAN Type DV Mechanical Lubricators—Oil Atomizers and Four Way Oil Distributors.

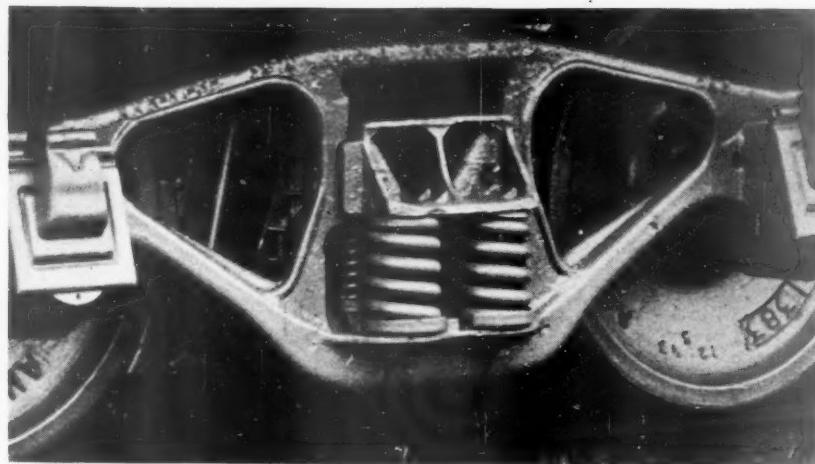
NATHAN MANUFACTURING CO.
250 PARK AVENUE NEW YORK

NATHAN

TYPE DV
Valveless
Mechanical
Lubricator



BARBER



STABILIZED TRUCKS FOR ECONOMY



LONG LIFE—

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Professor of Transportation, Columbia University



The new edition of this popular book on railroads describes latest practice. There is a complete new chapter on streamlined trains and additions to others covering the new developments in air brakes, air conditioning of passenger cars and in high-speed Diesel and electric locomotives. Among the numerous new illustrations are shown the new streamlined trains. This is an excellent book for a boy who wants to know more about railroads and for the average reader.

1939. 5th. 330 pages, 300 illus., 7 x 9½ in., cloth \$3.50.

Railroad Electrification and the Electric Locomotive

By ARTHUR J. MANSON

Manager, Transportation Sales Department, Westinghouse Electric & Manufacturing Company



Written primarily for railway officials and operating men who desire a general knowledge of the design, construction, and operation of electric locomotives and of their application to different kinds of railroad service. Typical problems encountered in electrification of steam railroads are outlined, together with their solutions. Fundamental principles are stressed, and the book is illustrated with photographs, detail drawings, diagrams and charts.

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(This offer is limited to the United States and Canada) R.A. 6-24-39

Railroad Mergers

By JOHN WILL CHAPMAN

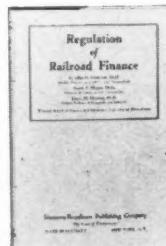
Member of Investment Staff, United States Trust Company of New York; Formerly Statistical and Security Analyst for the Standard Statistics Company

This book deals with the causes, methods of effecting and results of railroad mergers. It is packed with facts of value to anyone concerned in any way with changes to be effected through mergers of American railroads into large systems. Dealers in railroad securities will find it serviceable as a reference book on subjects of vital interest in their business. Bond owners will be particularly interested in the discussion of credit factors.

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The regulation of the financial affairs of railroads by the Federal government through the Interstate Commerce Commission, under the Transportation Act of 1920, is herein clearly explained. Various tests applied by the Commission in determining the elements of public interest to which the statute usually refers are traced, together with the nature and reasons for the Commission's action.

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A fascinating human interest story of the early American and Canadian railroads and of the men who built and ran them. The author, an old railroad man, tells of the beginnings of the Erie, the Pennsylvania, the Baltimore and Ohio, the New York Central, the first Pacific railroad, the Santa Fe, the Rio Grande, the Canadian Pacific and other lines. It is illustrated with reproduction of wood cuts of early locomotives and railroad scenes.

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By H. G. BRADY



Technical and semi-technical terms, phrases and expressions in more common use in railway, highway, air and marine transportation, and in port traffic are concisely defined in this handy reference book. Ordinary dictionaries, thesauri and law book sources furnish little information on transportation terms and this book fills a long felt need. It is printed in large clear type and cross references facilitate quick tracing of desired information.

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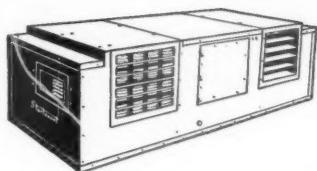
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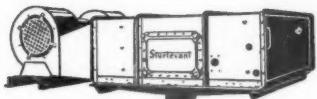
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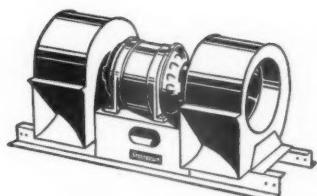
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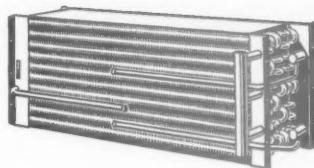
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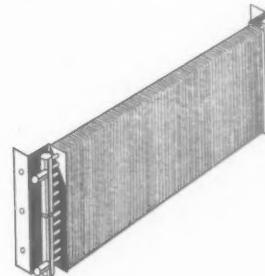
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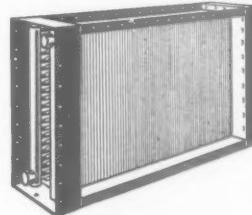
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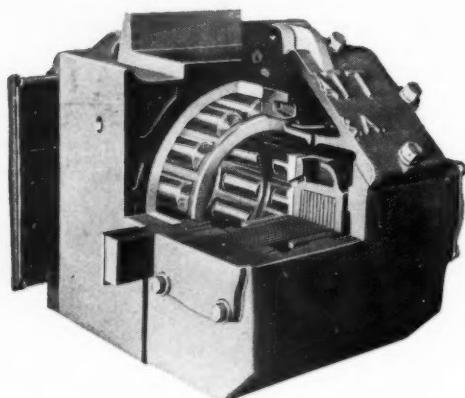
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SEE THIS HYATT EQUIPPED DIESEL ELECTRIC LOCOMOTIVE AT THE NEW YORK WORLD'S FAIR



•Railroad executives, who have not already received one, are invited to write for the new Hyatt Railroad Data Book and make use of Hyatt engineering service when considering new equipment or changeover to roller bearings on existing equipment.

THE Electro-Motive Corporation's diesel locomotive, with its Hyatt Roller Bearing journal boxes and Hyattized motor armature shafts, anticipates the transportation needs of the World of Tomorrow. It already has a record of successful performance on the Seaboard and other railroads today.

Visit the Hyatt exhibit in the General Motors Building where a journal box of the type used on this locomotive is on display, sectioned as in the accompanying photograph for convenient study and examination. Hyatt Bearings Division, General Motors Sales Corporation, Harrison, New Jersey; Detroit, Chicago, Pittsburgh and San Francisco.

HYATT *Roller* BEARINGS

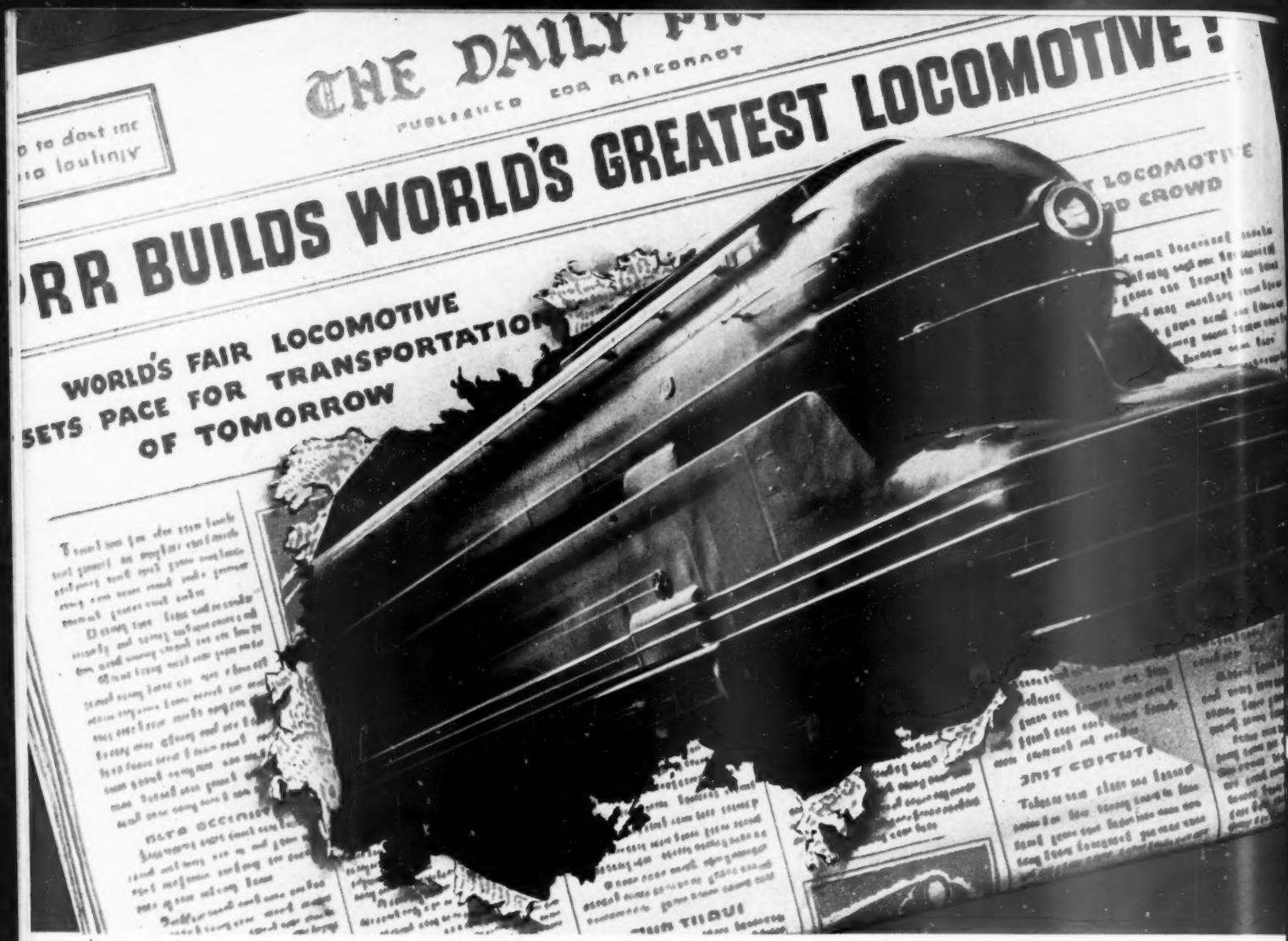
MEMO TO EXECUTIVES

Of 222 anti-friction bearings
on locomotives and cars at the
World's Fair track exhibit 190
or 85.4% are Timken!



THE WORLD OF TOMORROW
ROLLS ON
TIMKEN
ROLLER BEARINGS TODAY





THE BIGGEST MOST POWERFUL PASSENGER LOCOMOTIVE

IN THE WORLD

IS FULLY

TIMKEN

**BEARING
EQUIPPED**

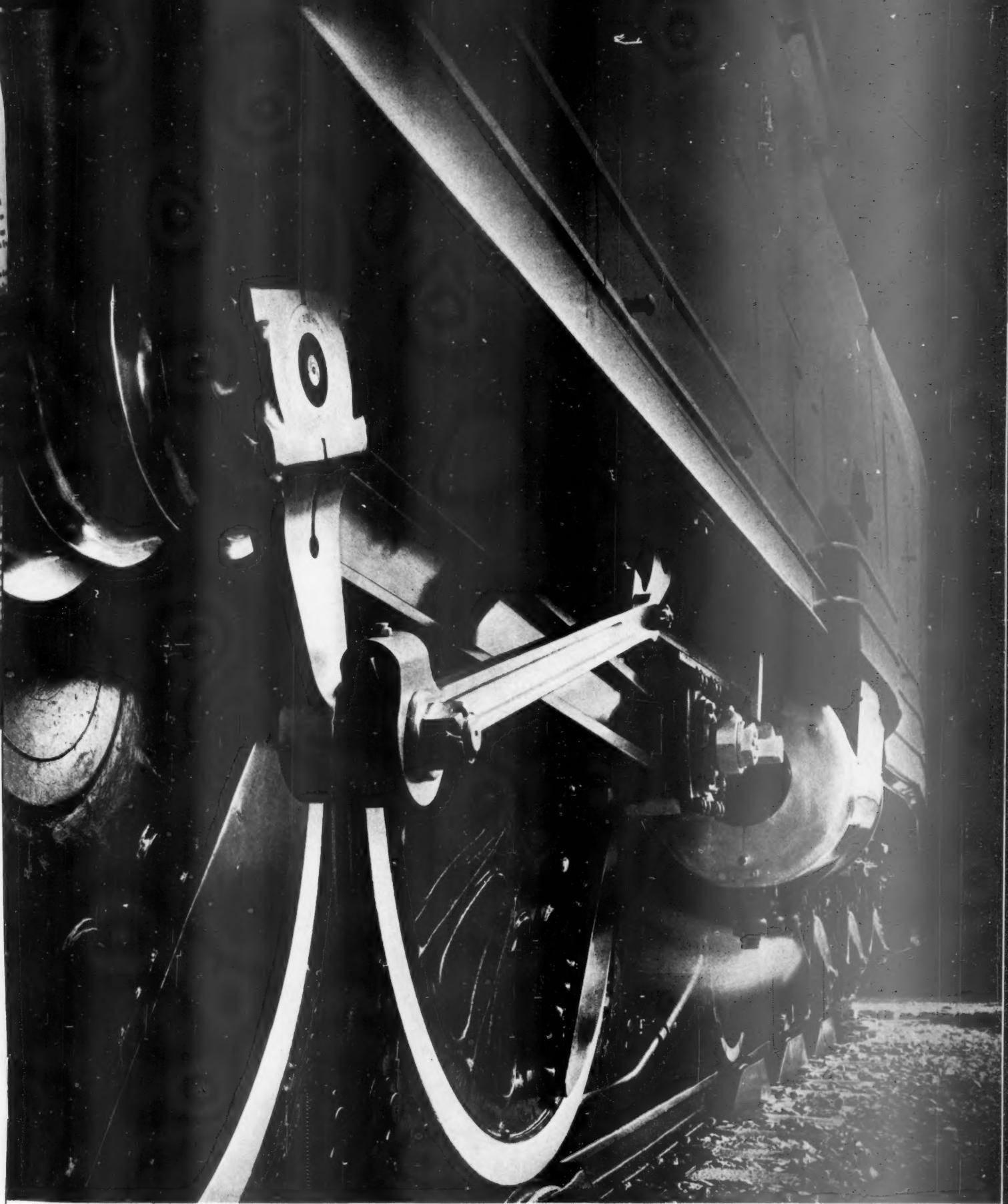


THE greatest mechanical minds in the railroad industry contributed to the design and the construction of the huge streamlined steam locomotive featured at the New York World Fair's Railroad Exhibit.

This giant locomotive was built in the Altoona, Pa., shops of the Pennsylvania Railroad. It is 140 feet long, has 4 cylinders and 8 driving wheels, and can pull a 14-car passenger train at 100 miles an hour or faster. It delivers 76,400 pounds tractive effort.

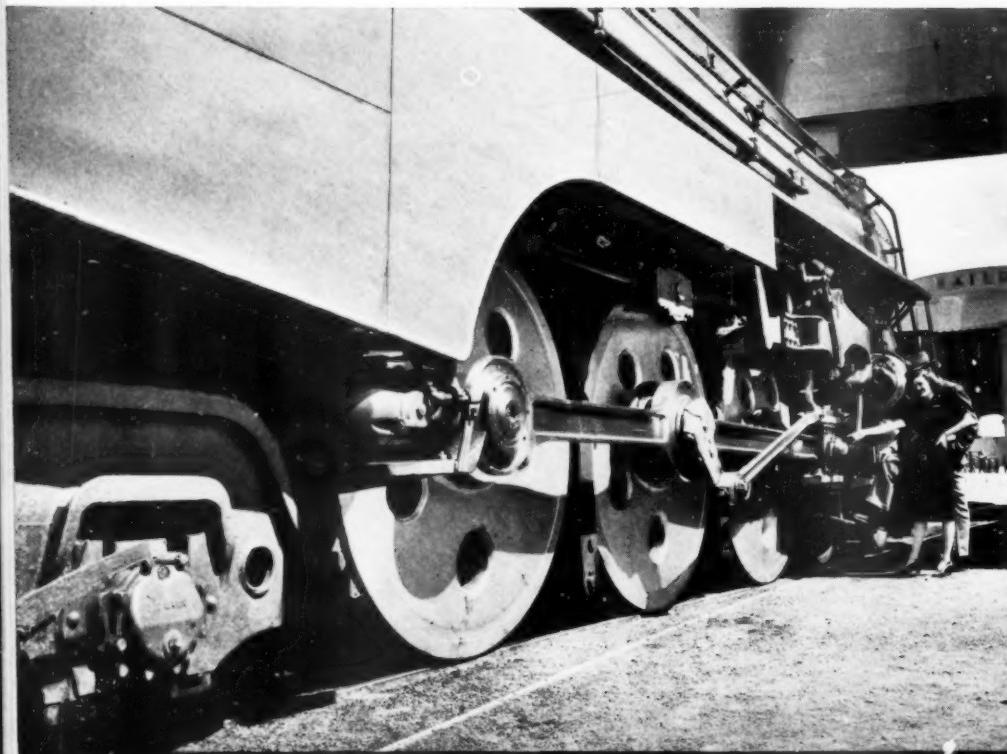
At least one secret of its huge power capacity lies in the fact that friction has been reduced to an almost negligible point by the installation of 40 Timken Roller Bearings.

The 8 drive wheels, the 12 engine truck and trailer wheels, the 16 tender wheels are all Timken Bearing equipped . . . again proving that TIMKEN is the standard railroad roller bearing. American Railroads recognize the economies, advantages, and long life of Timken Roller Bearings where high speeds and hard service are involved.



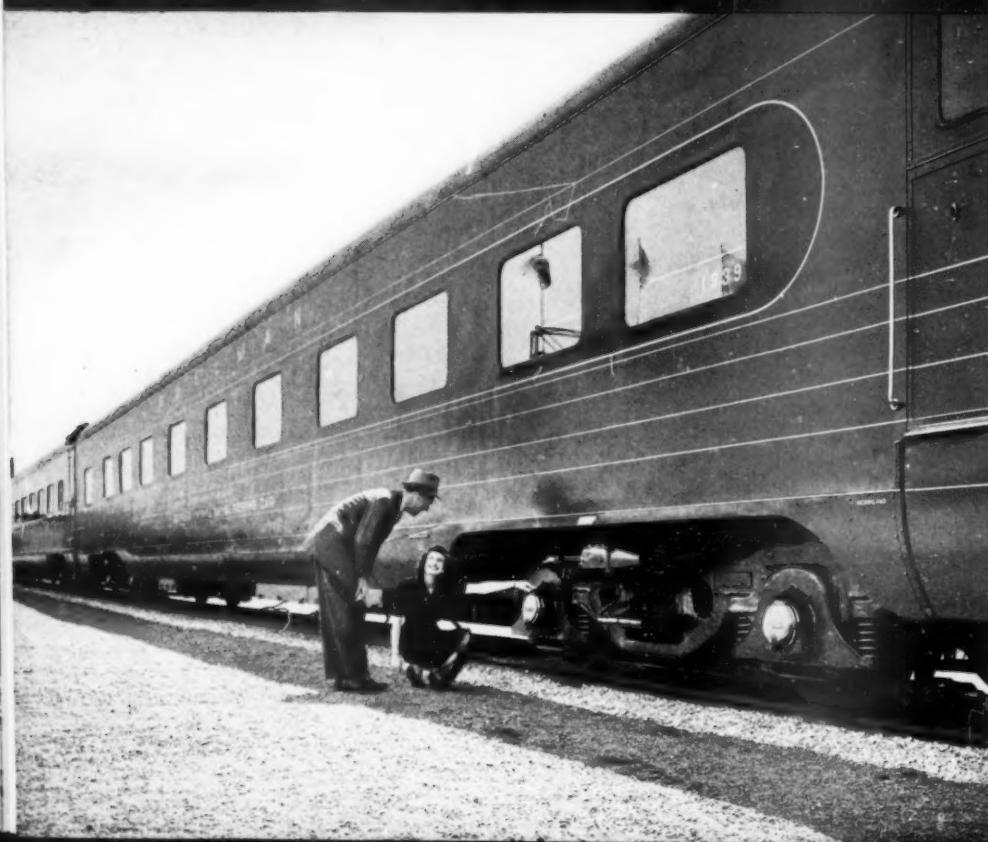
HERE is a close-up of the Timken Bearing equipped running gear of the world's biggest high speed passenger locomotive. All axles of the locomotive and tender are completely Timken Bearing equipped. In addition, the light weight reciprocating parts are made from Timken High Dynamic Steel and designed by Timken engineers. The driving wheels are 7 feet in diameter. The engine weighs 600,000 pounds. The tender loaded weighs 452,200 pounds, and carries 50,000 pounds of coal and 24,500 gallons of water.

TIMKEN LEAD



A POPULAR FEATURE OF THE TRACK EXHIBIT IS THIS STREAMLINED PASSENGER LOCOMOTIVE EQUIPPED WITH TIMKEN BEARINGS ON ALL DRIVING AND TRUCK AXLES, AND WITH TIMKEN LIGHTWEIGHT RECIPROCATING PARTS. THIS IS ONE OF FIFTY RECENTLY ADDED TO THE NEW YORK CENTRAL LINES. FIVE OF THE FIFTY ARE ALSO EQUIPPED, LIKE THE ONE DISPLAYED, WITH TIMKEN BEARINGS ON THE CRANK PINS, AND THE LIGHTWEIGHT DYNAMIC STEEL MAIN AND SIDE RODS MANUFACTURED BY TIMKEN.

THE THREE NEW MODERN PULLMAN CARS ON EXHIBITION AT THE WORLD'S FAIR ARE COMPLETELY TIMKEN EQUIPPED AND ALL NEW PULLMAN CARS AS THEY COME OUT OF THE SHOP COME OUT ON ROLLER BEARINGS.



NEVER before has it been so evident that Timken bearings are standard equipment on all modern railroads.

In the spectacular track exhibit at the World's Fair, four recently built American locomotives and three modern Pullman cars are roller bearing equipped.

At this remarkable display, there are 100 Timken equipped locomotives, 190, or 85.4%, are Timken. This includes 50 new streamliners, 100 passenger carrying cars as follows:—Locomotives completely equipped; and Passenger carrying equipment, 100% equipped.

What better evidence than this is needed that the engineers of America have almost unanimously chosen Timken roller bearing which was developed for the railroad industry by the company in America—Timken.



THIS IS ONE OF THE FIVE BUDD-BUILT PASSENGER CARS ON EXHIBITION AT THE WORLD'S FAIR. FOUR OF THESE CARS ARE COMPLETELY TIMKEN EQUIPPED AND ALL NEW PULLMAN CARS AS THEY COME OUT OF THE SHOP COME OUT ON ROLLER BEARINGS.

ON DISPLAY AT THE FAIR IS THE NORFOLK & SOUTHERN LOCOMOTIVE WHICH IS EQUIPPED WITH TIMKEN BEARINGS ON ALL JOURNALS. MOST OF THE LOCOMOTIVES ON THE NORFOLK AND WESTERN ARE EQUIPPED WITH TIMKEN ROLLER BEARINGS.



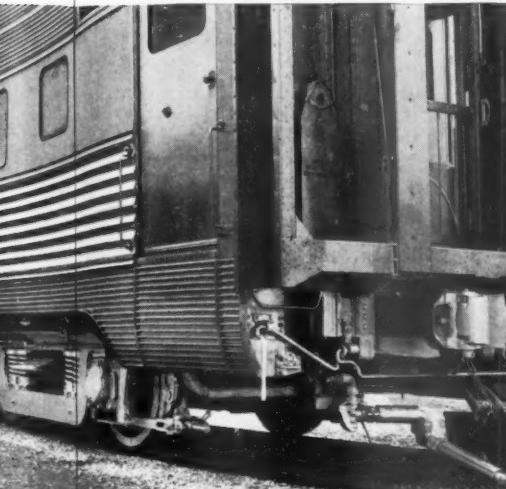
HEADS AT THE FAIR

so evident that roller bearings have become modern railroad rolling stock.

exhibit at the New York World's Fair, all motives and most of the passenger carrying equipment.

ly, there are 222 roller bearing installations in. This is divided between locomotives and follows:—Locomotives, 84.8% Timken Bearing carrying equipment, 87.5% Timken Bearing

an this is needed to prove the railroads of mously chosen, as standard equipment, the d for the railroads by *the greatest bearing n.*



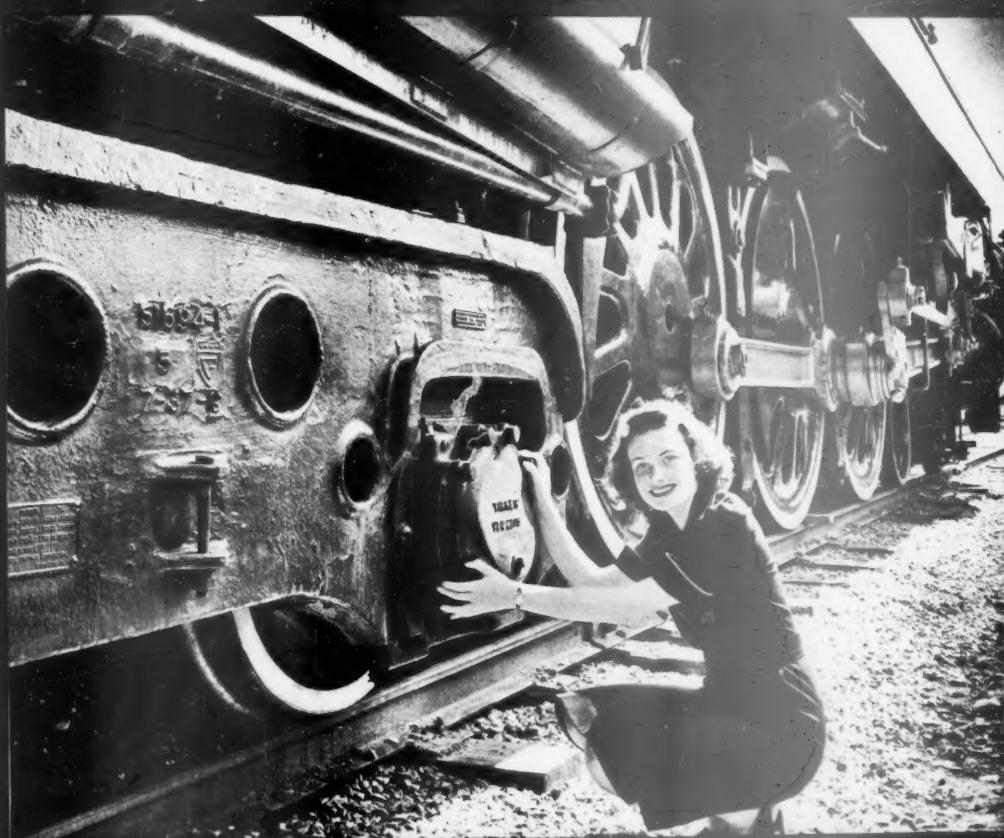
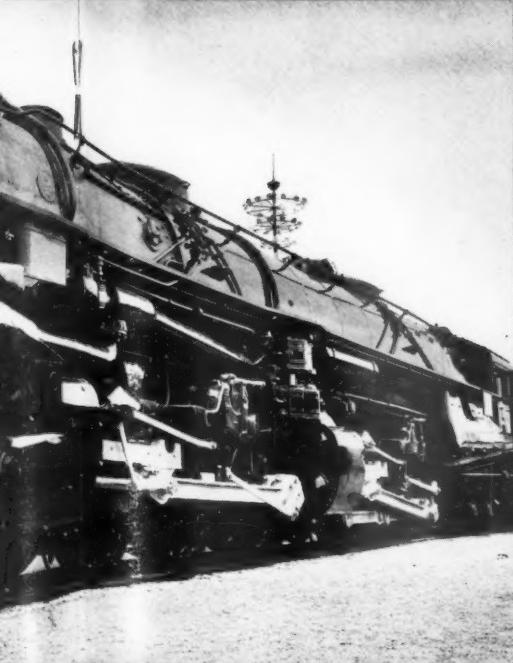
BUILT PASSENGER CARS SCHEDULED TO BE SHOWN AT THESE CARS WILL BE COMPLETELY TIMKEN ROLLER BEARINGS. MOST CARS AND LOCOMOTIVES BUILT BY BUDD HAVE TIMKEN BEARINGS.

NORFOLK AND WESTERN 2-6-4 ARTICULATED FREIGHT WITH TIMKEN BEARINGS ON ALL DRIVING AXLES. UNDER TRUCKS. THIS IS ONE OF SEVERAL IN SERVICE



THIS MODERN PENNSYLVANIA ELECTRIC LOCOMOTIVE ON DISPLAY AT THE WORLD'S FAIR IS TIMKEN EQUIPPED ON ALL AXLES. THE PENNSYLVANIA HAS IN OPERATION 196 ADDITIONAL ELECTRIC LOCOMOTIVES IN MAIN LINE SERVICE WHICH ARE EQUIPPED WITH TIMKEN ROLLER BEARINGS.

THIS IS ONE OF FIVE 4-6-4'S THAT OPERATE ON THE DELAWARE LACKAWANNA AND WESTERN. IT IS EQUIPPED WITH TIMKEN BEARINGS ON ALL AXLES, INCLUDING THE DRIVING AXLES. LACKAWANNA ALSO HAS 20 4-8-4'S IN SERVICE WITH ALL AXLES TIMKEN BEARING EQUIPPED.



and here is the locomotive that

STARTED IT ALL

"TIMKEN 1111" (NOW NORTHERN PACIFIC 2626)



THE first fully equipped roller bearing locomotive was built by Timken only nine years ago. It was loaned to 14 railroads and operated from coast to coast, where it proved itself under actual working conditions. It was put through unusual tests. After it had gone 280,000 miles, it was torn down to find out actually what had happened to the Timken Bearings—the first set of Timken Bearings ever manufactured for use in locomotives.

280,000 miles of hard usage had not damaged the bearings. They were as good as new. There was no need to replace them. They were simply returned to the locomotive, and as you are reading this, "Northern-Pacific 2626" (formerly Timken 1111) is pulling the North Coast Limited over the Cascade Mountains, still on the same roller bearings placed there 9 years ago, now with 600,000 miles to their credit.

Here is actual experience. Here is proof of all the claims made for Timken Roller Bearings.

Railroads that keep comparative operating cost figures on Timken Bearing equipped anti-friction locomotives versus friction bearing equipped locomotives find almost unbelievable increased availability and decreased maintenance expenses of the Timken Roller Bearing locomotives. Actual figures vary on different railroads due to different operating conditions and range from 35% to 100% increased availability and from 3¢ a mile to 11¢ a mile decreased locomotive maintenance costs.

Timken Bearing equipped locomotives have greatly increased rod bushing life and the time between dropping the wheels for tire turning has been remarkably extended. One railroad (C. & N. W.) just dropped their Timken Bearing equipped driving wheels for tire turning at 185,000 miles.

Timken Bearings remove all restrictions on speed as far as bearings are concerned.

TIMKEN

TRADE MARK REG U. S. PAT. OFF.



THE STANDARD RAILROAD ROLLER BEARING

F ACTS SHOWING TYPES OF BEARINGS ON ALL LOCOMOTIVES, TENDERS, AND PASSENGER CARS AT THE FAIR

LOCOMOTIVES

Type of Bearing	Number of Journals
TIMKEN BEARINGS	134
ALL OTHER ROLLER BEARINGS	24
FRICITION BEARINGS	74

PASSENGER EQUIPMENT CARS

Type of Bearing	Number of Journals
TIMKEN BEARINGS	56
ALL OTHER ROLLER BEARINGS	8
FRICITION BEARINGS	52

84.8% OF ALL LOCOMOTIVE ROLLER BEARING JOURNALS ARE TIMKEN BEARING EQUIPPED

87.5% OF ALL PASSENGER CAR ROLLER BEARING JOURNALS ARE TIMKEN BEARING EQUIPPED



85.4%

OF ALL JOURNAL ROLLER BEARINGS AT THE TRACK EXHIBIT ARE

TIMKEN

The exhibit of TIMKEN Products at the New York World's Fair has been acclaimed one of the outstanding features of this greatest show of all time. Interesting highlights of the exhibit include: One of the first automobiles to be equipped with TIMKEN Bearings...A TIMKEN Roll Neck Bearing having a load capacity of nearly three million pounds...A machine that measures the thickness of a human hair in hundred-thousandths of an inch, as a demonstration of the precision with which TIMKEN Bearings are made...A diorama showing in miniature the world's largest electric steel furnace—capacity 75 tons of steel per heat...A TIMKEN Fuel Injection Pump cut away to show the internal mechanism in operation...The various parts of a TIMKEN Bearing—automatically assembling and disassembling to demonstrate the tapered design and construction of the TIMKEN Bearing—A display dramatizing the Timken Roller Bearing Company's contribution to modern locomotive design—including TIMKEN Locomotive Bearings, main rods, side rods and other reciprocating parts...THE TIMKEN ROLLER SKATERS in a sensational novelty act performed on a platform only nine feet in diameter elevated seven feet above the floor. The skaters perform ten times daily.





THE Milwaukee's Hiawatha, speeding twice daily between Chicago and the Twin Cities, has built up a marvelous record for popularity, regularity, fast running—and above all easy riding rolling stock. The comfortable travel experienced by passengers on this money-making train is due in large measure to a specially designed coil spring suspension using "Railway" Quality Springs. "Railway" by reason of its long experience, is equipped to cooperate with railway mechanical departments in the design of spring suspension which not only will provide easy riding—but protect equipment and track against high maintenance expense.

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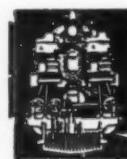
TRAINS, TRACKS and TRAVEL

By T. W. VAN METRE

Professor of Transportation, Columbia University



350 pages, 300 illustrations, 8 in full color, 6 $\frac{3}{4}$ x 9 $\frac{1}{2}$ inches,
semi-library binding, \$3.50



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R. A. 6-24-39

THOROUGHLY revised and reset in more legible type this popular juvenile book on railroading is up-to-date in every respect. Nearly all of the locomotives, old and new and foreign, that are on display at the New York World's Fair are shown in this new edition. Six modern Diesel and two streamlined steam locomotives are shown in full color.

A chapter is devoted to the new all-Pullman streamlined trains of the "Twentieth Century Limited" and the "Broadway Limited." The Union Pacific's new steam turbo-electric locomotive is described with the aid of a diagrammatic sketch of its principal parts. The latest improvements in railroading, such as high speed signaling, centralized traffic control, interlocking, air-conditioned passenger cars, light weight coaches and streamlined trains are pictured and described.

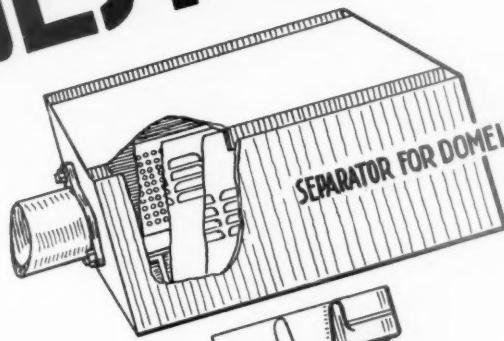
Although originally written for boys this book now contains so much accurately detailed information that it is suitable for many adults. Railroad "fans," engine picture collectors, and those for whom railroading is a lost love, will find in this new edition hours of enjoyment.

Table of Contents

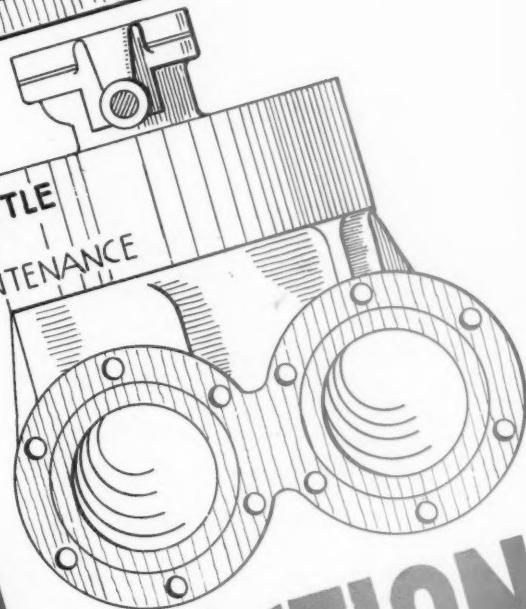
Our Steam Railroads—The Railroad Track—The Steam Locomotive—Electric Locomotives; Gasoline and Oil Motors—Freight Cars—Passenger Train Cars—Tomorrow's Trains Become Today's—Streamlined from Coast to Coast—Passenger Stations and Terminals—Freight Terminals—The Operation of Trains.

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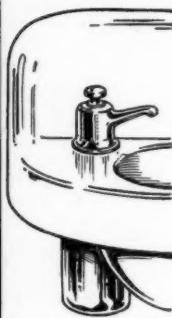
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**FOR THEIR
COMFORT
ON MODERN TRAINS . . .**

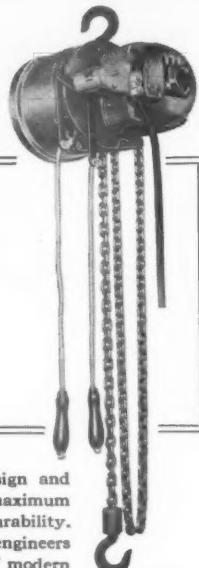
Feminine travelers greatly appreciate "those little things" that contribute to their special comfort and well-being. On this new deluxe coach train will be found the latest type of West paper towel and sanitary cabinets, and soap dispensers that fulfill this paramount purpose and do it economically.

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DEVELOPMENT
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WITH MANY
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SELF-LOCKING NUT

is solving the tough fastening problems on railway equipment

TO meet the new fastening problems that have arisen with the higher speeds and greater stresses of modern trains, progressive railway engineers have turned to self-locking Elastic Stop Nuts, the standard fastening device of the aircraft industry.

Where castellated nuts and cotter pins have failed, Elastic Stop Nuts are now used on brake clasps, trucks, diaphragm support rods, and at many other important points on passenger cars, dining cars, and Diesel locomotives. They are in service on several high-speed through trains.

Elastic Stop Nuts take the gamble out of bolted connections. No more loose bolts and nuts...no more nut maintenance...and, above all, complete safety!

THE NUT WITH THE RESILIENT LOCKING COLLAR



WRITE for this 48-page catalog. It explains the Elastic Stop principle, gives comparative test data, illustrates numerous applications, and lists the many types and sizes of nuts available.

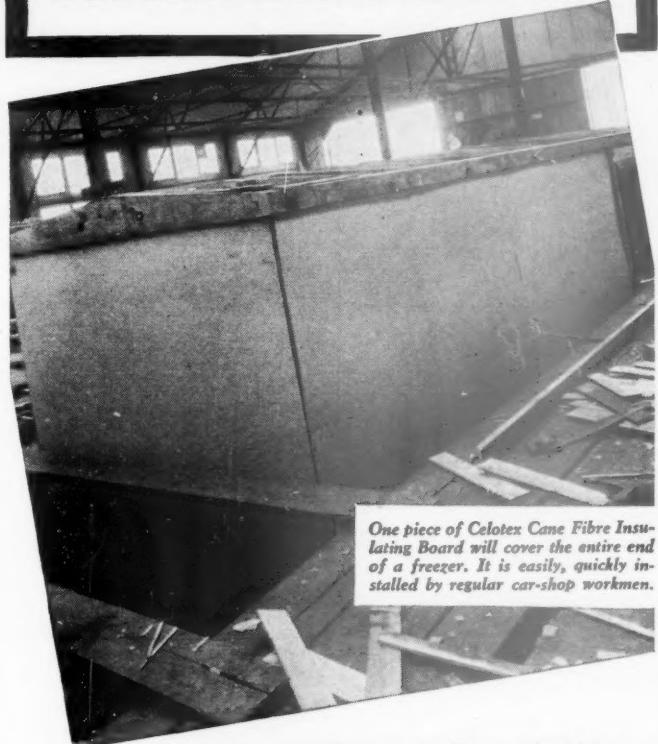
...And see the Elastic Stop Nut Exhibit in the Aviation Building at the New York World's Fair

ELASTIC STOP NUT CORPORATION
100TH NEWARK AVENUE • ELIZABETH, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS

THE LOW COST WAY

**TO BUILD NEW "FREEZERS"
OR RECONDITION OLD ONES!**



One piece of Celotex Cane Fibre Insulating Board will cover the entire end of a freezer. It is easily, quickly installed by regular car-shop workmen.

Gain Efficient Insulation and Structural Strength from One Material at One Low Cost!

SEE HOW one piece of Celotex Cane Fibre Insulating Board covers the entire end of this freezer—demonstrating one of the many advantages of this proved insulation! These big, rigid boards are easy to handle. They go up fast. They fit tight and stay put—can't settle or shift during any amount of rambling from one end of the country to the other!

Celotex Cane Fibre Insulation cuts hauling costs, because its light weight permits the use of lighter gauge steel and thinner framing members. Resists moisture absorption—and is permanently protected against termites and dry rot by the exclusive, patented Ferox Process.

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The word Celotex is a brand name identifying a group of products marketed by The Celotex Corporation.

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1938. 12 page Supplement.

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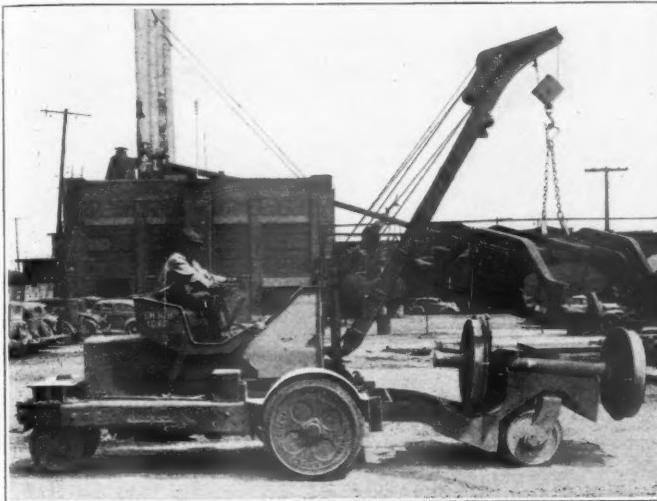
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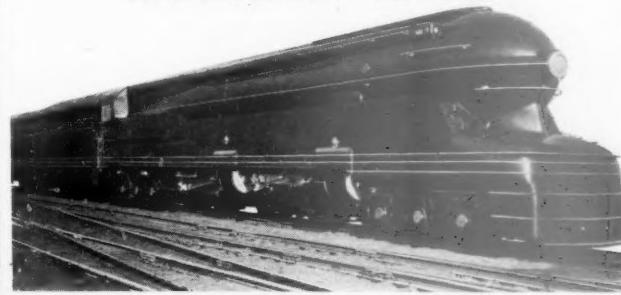
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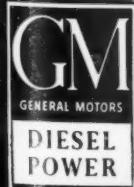
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Railway Age

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Date of Presentation
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Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price, \$6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 106, No. 25.



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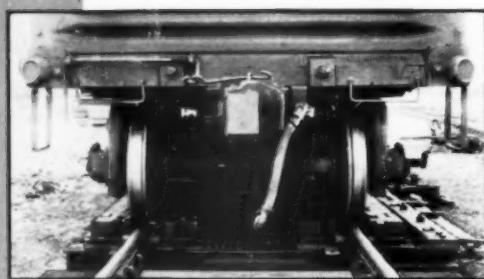
By eliminating switching at 7 yards, a saving is obvious. Other savings include a decrease in maintenance, locomotive costs, personal injuries, damage to lading, faster deliveries and many other indirect savings.



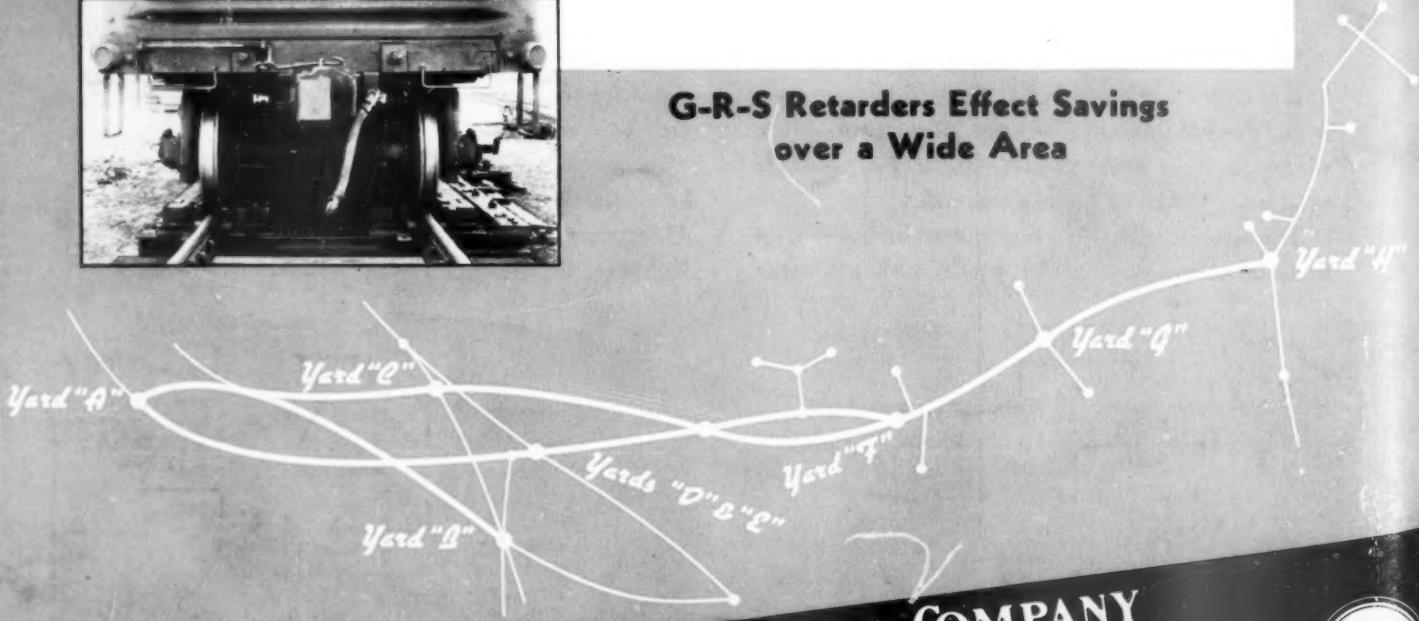
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